WBS No: 1CAC09 1CAC71093 Activity ID:

Planning & Engineering Prep to Drain

Rocky Flats Closure Project **Baseline Cost and Basis of Estimate**

Proiect WBS Filter

Baseline Devl 1CAC

Activity Filter Starts In FY WBS No: 1CAC09 Svs 9 - Special Recovery Rm 146 Activity ID: 1CAC71093 Description: Remove proc. piping, Sys. 09, Special Recovery Cost Risk 4 Schedule Risk Total Prime Line Item Description BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Burden Cost Total Cost Hours/Unit & Escalation Type **Total Total** Cost Cost PPR 18.247 1.00 each FF 1.659 1.659 37.392 10.703 48.094 66.341 Total for Activity 1CAC71093: 1.659 37 392 10.703 48.094 18.247 66.341 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Element Skill Department Curve Units Resources 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 831.29 Hours Difficulty Factor 0.7451 5/22/00 togo Factor 734 Hours 750 STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 323.91 Hours 0.7451 5/22/00 togo Factor Difficulty Factor 286 Hours T060 D&D HAZ REDUC TECH / RISK RED 256.46 Hours 750 STRAIGHT TIME BASE KC10H 771 Complex Steelworkers Linear 1.52 Difficulty Factor 0.7451 5/22/00 togo Factor Factors 306 Hours 0.74 Heatcount Cuts OVERTIME BASE & PRE D&D SKILLED TRADES KC10H 771 Complex Steelworkers 147.23 Hours C120 Linear 130 Hours Difficulty Factor 0.7451 5/22/00 togo Factor 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 56.63 Hours Linear Difficulty Factor 0.7451 5/22/00 togo Factor Factors 50 Hours 751 OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 43.58 Hours Factors 52 Hours 1.52 Difficulty Factor 0.7451 5/22/00 togo Factor Heatcount Cuts A57 LATA E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear 10.532.73 Dollars Difficulty Factor 0.7451 5/22/00 togo Factor 124 Hours Dollars per hr 1.52 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 169.88 Dollars Factors Hours 75 Dollars per hr 1.52 Difficulty Factor 0.7451 5/22/00 togo Factor Activity ID: 1CAC71094 Description: Finalize closure doc., Svs. 09, Special Recovery 2 Schedule Risk Cost Risk Line Item Description BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Type Hours/Unit Total Total Cost & Escalation Cost Closure Documentation FF 1.500 0 72 1.720 1.00 each 148 1.648 Total for Activity 1CAC71094: 148 1 500 0 1 648 72 1.720 Line Item 4 - Closure Documentation The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Flement Skill Quantity Units Department Curve 750 STRAIGHT TIME BASE K281S Building 771 Closure Project E050 ENVIRONMENTAL ENGINEERS Linear 5.00 Hours Factors 5 Hours Difficulty Factor A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 1.500.00 Dollars Linear Dollars per Hr Difficulty Factor WRS No: 1CAC10 Sys 10 - Uranium Recovery/OY Leach R. 17 Activity ID: 1CAC71101 Description: Plan/Eng prep to drain Sys.10. U Recov' - OY Lch Cost Risk 1 Schedule Risk 1 Total Prime Line Item Description **Ouantity** BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Burden Cost Total Cost Type Hours/Unit Total **Total** Cost & Escalation Cost

1.00 each

FF

1.499

1.499

40.504

113.553

19.766

133.319

WBS No: 1CAC10 *Activity ID:* 1CAC71101

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71101:

Proiect WBS Filter

40.504

Baseline Devl 1CAC

7<u>Y</u> * 19.766 133.319

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

1.499

Resources

es		Cost Element		Skill			Department		Curve	2	Ouantity	Units
L	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Buildina	771 Closure Proiect		Linea	r	95.37	Hours
	Factors	110 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
L	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Buildina	771 Closure Proiect		Linea	r	45.08	Hours
ī	Factors	52 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor					
L	750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Buildina	771 Closure Proiect		Linea	r	28.61	Hours
	Factors	33 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
L	750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Buildina	771 Closure Proiect		Linea	r	352.00	Hours
	Factors	406 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
L	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Buildina	771 Closure Proiect		Linea	r	6.94	Hours
	Factors	8 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
L	750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Buildina	771 Closure Proiect		Linea	r	56.35	Hours
	Factors	65 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
L	750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building	771 Closure Proiect		Linea	r	23.41	Hours
	Factors	27 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
L	750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building	771 Closure Proiect		Linea	r	0.87	Hours
ī	Factors	1 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor					
L	750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC S	alaried		Linea	r	2.60	Hours
ī	Factors	3 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor					
L	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	nplex Steelworkers		Linea	r	247.96	Hours
r	Factors	286 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor					
Ĺ	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	nplex Steelworkers		Linea	r	520.20	Hours
r	Factors	600 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor					
L	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	nplex Steelworkers		Linea	r	43.35	Hours
	Factors	50 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
Ĺ	751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	nplex Steelworkers		Linea	r	76.30	Hours
	Factors	88 Hours		1 Difficulty Factor		0.867	5/22/00 togo Factor	,				
ļ	A52	TENERA	E070	MECHANICAL ENGINEERS	K281S	Buildina	771 Closure Proiect		Linea	r	23.864.17	Dollars
	Factors	367 Hours		75 Dollars per hr		_1	Difficulty Factor	0.86	57 5/	/22/00 togo Fa	ctor	
Ĺ	A52	TENERA	E130	OTHER ENGINEERS	K281S	Buildina	771 Closure Proiect		Linea	r	5.397.07	Dollars
	Factors	83 Hours		75 Dollars per hr		_1	Difficulty Factor	0.86	57 5/	/22/00 togo Fa	ctor	
Ĺ	A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	K281S	Buildina	771 Closure Proiect		Linea	r	9.688.72	Dollars
	Factors	149 Hours		75 Dollars per hr		_1	Difficulty Factor	0.86	57 5/	/22/00 togo Fa	ctor	
L	A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Buildina	771 Closure Proiect		Linea	r	12.640.86	Dollars
ī	Factors	162 Hours		90 Dollars per hr		1	Difficulty Factor	0.86	67 5/	/22/00 togo Fa	ctor	
L	A5H	SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building	771 Closure Proiect		Linea	r	9.753.75	Dollars
r	Factors	150 Hours		75 Dollars per hr		1	Difficulty Factor	0.86	57 5/	/22/00 togo Fa	ctor	
Į	A5H	SUBCONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Buildina	771 Closure Proiect		Linea	r	11.704.50	Dollars
	Factors	180 Hours		75 Dollars per hr		1	Difficulty Factor	0.86	57 5/	/22/00 togo Fa	ctor	

Factors 180 Hours 75 Dollars per hr 1 Difficulty Factor

Activity ID: 1CAC71102 Description: Tap & drain System 10, U Recovery - OY Leach

Cost Risk	1	Schodule Rick	2

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	1.862	1.862	39.242	10.089	0	49.331	18.718	68.049
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3.706	3.706	0	3.706
	Tot	Total for Activity 1CAC71102:						10.089	3.706	53.037	18.718	71.755

WBS No: 1CAC10 Activity ID: 1CAC71102

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC Activity Filter *

Starts In FY

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	49.02	Hours
	Factors	43 Hours		1.14 Difficulty Factor					
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	403.56	Hours
,	Factors	354 Hours		1.14 Difficulty Factor					
Į	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	1.130.42	Hours
	Factors	1340 Hours		1.14 Difficulty Factor					
r			ı		ı	0.74 Heatcount Cuts			
Į	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	199.09	Hours
	Factors	236 Hours		1.14 Difficulty Factor					
ıř			1		T	0.74 Heatcount Cuts			
Į	751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	9.12	Hours
r	Factors	8 Hours		1.14 Difficulty Factor					
Į	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	70.68	Hours
ıř	Factors	62 Hours	1	1.14 Difficulty Factor	T	T.			
Į	A5H	SUBCONTRACTED SRVS	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	10.089.00	Dollars
	Factors	118 Hours		75 Dollars per Hr		1.14 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	2,275.00	Dollars
_	Factors	2275 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	1,430.92	Dollars

Factors 1430.92 Dollars

Activity ID: 1CAC71103

Description: Remove proc. piping, Sys. 10, U Recov - OY Leach

Cost Risk 4 Schedule Risk

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
3	PPR	1.00	each	EE	1.670	1.670	37.637	10.773	0	48.410	17.953	66.364
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3.614	3.614	0	3.614
	Tot	Total for Activity 1CAC71103:								52.025	17.953	69.978

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

es		Cost Element		Skill		Department	Curve	Ouantity Units
Į	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	836.76 Hours
,	Factors	734 Hours		1.14 Difficulty Factor				
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	326.04 Hours
,	Factors	286 Hours		1.14 Difficulty Factor				
Į	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	258.14 Hours
	Factors	306 Hours		1.14 Difficulty Factor				
,						0.74 Heatcount Cuts		
Į	751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	148.20 Hours
	Factors	130 Hours		1 14 Difficulty Factor				

WBS No: 1CAC10 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71103 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 57.00 Hours Linear 50 Hours Difficulty Factor T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 751 OVERTIME BASE & PRE Linear 43.87 Hours Difficulty Factor Factors 52 Hours 1.14 Heatcount Cuts E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 10.602.00 Dollars A57 LATA Linear Factors 124 Hours 75 Dollars per hr 1.14 Difficulty Factor A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 171.00 Dollars Dollars per hr Difficulty Factor Factors 2 Hours 75 1.14 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 2.218.65 Dollars 0000 NONE ZDEPT No Department Linear Factors 2218.65 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 1.395.48 Dollars Linear 1395.48 Dollars Activity ID: 1CAC71104 Cost Risk 2 Schedule Risk Description: Finalize closure doc., Sys. 10, U Recov - OY Lch Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Ouantity** Hours/Unit & Escalation TypeTotal Total Cost Closure Documentation 1.00 each EE 148 1.500 1.648 71 1.718 SYS Contingency And Escalation 1.00 ea FF n 92 92 0 92 Total for Activity 1CAC71104: 5 1.500 92 1.740 71 148 1.810 Line Item 4 - Closure Documentation The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units K281S Building 771 Closure Project 750 STRAIGHT TIME BASE **E050 ENVIRONMENTAL ENGINEERS** Linear 5.00 Hours Hours Difficulty Factor A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 1.500.00 Dollars 20 Dollars per Hr Difficulty Factor Factors Hours 75 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Units Department CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 55.76 Dollars 55.7588 Dollars ESCALATION 0000 NONE ZDEPT No Department 36 13 Dollars Linear 36.1320 Dollars WBS No: 1CAC11 Sys 11 - Anion Exchange Rm 149 Activity ID: 1CAC71111 Description: Plan/Eng prep to drain Sys 11 Anion Exch, Rm 149 Cost Risk 1 Schedule Risk Line Item Description **Ouantity** Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Total & Escalation Type Hours/Unit **Total** Cost Cost Planning & Engineering Prep to Drain 1.00 each EE 1.035 1.035 27.970 50.443 78.413 13.649 92.062 Total for Activity 1CAC71111: 1.035 27.970 50 443 Λ 78.413 13 649 92 062 Line Item 1 - Planning & Engineering Prep to Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for

liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data

presented herein.

Page 4 of 85 6/22/00 8:43:47 PM *OFFICIAL USE ONLY*

WBS No: 1CAC11 1CAC71111 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Baseline Devl Proiect WBS Filter 1CAC Activity Filter

Starts In FY *

29.397

105.124

75.727

₽	0	•	ıır	~	•

										Atti	viiv Filler		OI.	uris m r	
ources	ذ	C	ost Element		Skill				Departr	ment		Curve	0	uantity Uni	its
	750	STRAIGHT	TIME BASE	E050 ENVIRO	NMENTAL	ENGINEER	S	K281S Build	dina 771 Closu	re Proiect		Linear		65.86 Hours	S
	Factor.	s 110	Hours	1	Difficulty	/ Factor		0.59	987 5/22/00 t	togo Factor					
	750	STRAIGHT	TIME BASE	E080 NUCLE	AR (CRITIC	ALITY) ENG	INEER	K281S Build	dina 771 Closu	re Proiect		Linear		31.13 Hours	s
	Factor.	s 52	Hours	1	Difficulty	/ Factor		0.59	987 5/22/00 t	togo Factor					
	750	STRAIGHT	TIME BASE	E120 SAFET	'ENGINEE	RS			dina 771 Closu			Linear		19.76 Hours	s
	Factor.		Hours	1	Difficulty				987 5/22/00 t						
	750	STRAIGHT	TIME BASE	E130 OTHER	ENGINEER	RS			dina 771 Closu			Linear		243.07 Hours	S
	Factor.	s 406	Hours	1	Difficulty	/ Factor			987 5/22/00 t						
	750	STRAIGHT	TIME BASE	M020 MANAG	ERS (GRAI				dina 771 Closu			Linear		4.79 Hours	s
	Factor.		Hours	1	Difficulty				987 5/22/00 t				·		
	750	STRAIGHT	TIME BASE	P090 INDUST					dina 771 Closu			Linear		38.92 Hours	S
	Factor.		Hours	1	Difficulty				987 5/22/00 t					001021110011	
	750		TIME BASE	P150 TRAINE					dina 771 Closu			Linear		16.16 Hours	9
	Factor.		Hours	1	Difficulty	/ Factor			987 5/22/00 t		•	Linoui		10.101110410	
	750		TIME BASE	P170 OTHER			ROFF		dina 771 Closu			Linear		0.60 Hours	9
	Factor.		Hours	1	Difficulty		IVOI E		987 5/22/00 t			Lincai		O.OOII IOUIX	
	750		TIME BASE	S010 CHEMIS		/ I actor		S100S SSC		logo i actoi		Linear		1.80 Hours	
	Factor.		Hours	1	Difficulty	, Factor			987 5/22/00 t	togo Eactor	l l	Lilleai	l l	1.00ii iouis	3
	750		TIME BASE	T050 RADIAT		ROL TECHN	IOLIGI		Complex Steel			Linear		171.23 Hours	
	Factor.		Hours	1 1030 INADIA1	Difficulty		VOLIGI		987 5/22/00 t			Lilleai		17 1.2311 10013	•
	750		TIME BASE	T060 D&D HA		TECH / RISH	/ DED		Complex Steel			Linear		359.22 Hours	
	Factor.		Hours	1	Difficulty		N NLD		987 5/22/00 t			Lilleai		339.22 i louis	5
	751		E BASE & PRE.	T050 RADIAT			IOLIGI		Complex Steel			Linear		29.93 Hours	
	Factor.		Hours	1 1030 INADIA1	Difficulty		NOLIGI		987 5/22/00 t			Lilleai	l .	29.93 i louis	5
	751		E BASE & PRE.	T060 D&D HA			/ DED		Complex Steel			Linear		52.69 Hours	•
			Hours	1 1000 ID&D FIF	Difficulty		NED		987 5/22/00 t			Lilleai		52.09 H0uis	5
	Factor.		Houis	E070 MECHA	NICAL ENG				ding 771 Closu			Linear		16,479.22 Dollar	
			Hours	75	Dollars i			N2015 Build	Difficulty				2/00 togo Facto		15
	Factor.		Hours					ICONAC Duille					2/00 togo Facto	or 3.726.91 Dollai	
	A52	•	Harris	E130 OTHER				K2815 Build	ding 771 Closu			Linear	2/00 4 54-		rs
	Factor.		Hours	75	Dollars i		DITOD	140040 D 1	Difficulty				2/00 togo Facto	or 6.690.47 Dollai	
	A57					ERS AND E	DITOR	K281S Build	dina 771 Closu			Linear			rs
	Factor.		Hours	75	Dollars I			1 1	Difficulty				2/00 togo Facto		
	A5H		RACTED SRVS			ALITY) ENG	INEER	K281S Build	dina 771 Closu			Linear		8.729.05 Dollar	rs
	Factor.		Hours	90	Dollars			1	Difficulty				2/00 togo Facto		
	A5H		RACTED SRVS			RS PLANNEI	RS AN	K281S Build	dina 771 Closu			Linear		6.735.38 Dollar	rs
	Factor.		Hours	75	Dollars		ı	1	Difficulty				2/00 togo Facto		
	A5H		RACTED SRVS	P080 HEALTH				K281S Build	dina 771 Closu			Linear		8.082.45 Dollar	rs
	Factor.		Hours	75	Dollars			1	Difficulty	Factor		0.5987 5/22	2/00 togo Facto	or	
		4440	Description: Tap & dra	ain System 11 Ani	on Exchang	ie, Rm 149					Cost Risk	4 Schedule F	Risk 3		
:	1CAC7	1112	Description. Tup a air	an 0 70 to 111 111, 7 ti 11											
): Item		1112		an Oyotom 11,7an	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Tota
		1112	Description Description	am 0,000m 11,74m	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Tota

Line Item 2 - Tap & Drain

BOE

Activity ID:

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

2.858

60.239

Resource

ces		(Cost Element			Skill		Department	Curve	Quantity	Units
	750	STRAIGH	IT TIME BASE	C120	D&D SKIL	LED TRADES	KC10H	771 Complex Steelworkers	Linear	75.25	Hours
	Factors	43	Hours		1.75	Difficulty Factor					

Total for Activity 1CAC71112:

6/22/00 8:43:48 PM Page 5 of 85 OFFICIAL USE ONLY

15.488

WBS No: Activity ID:	1CAC11 1CAC71112				Closure P				aseline Devl CAC				
Activity ID.	TOACTITIE		Baselii	ne Cost ar	nd Basis of E	stimate		ivitv Filter *	OAO	C	arts In FY	*	
	750 STRAIGHT TIME BASE	TOFO BADIATI	ON CONTROL TE	CHNOLICI	KC10H 771	Compley Steel		iviiv Filler	Linear	SI	619.50 H	Jouro	
		•	Difficulty Factor		KCTUH 1771	Complex Steel	IWOIKEIS		Lilleai		019.50[10015	
		1.75	Z REDUC TECH /		1/04011 774	0	l		Unana		1.735.30 H	1	
	750 STRAIGHT TIME BASE				KC10H 1//1	Complex Steel	Iworkers		Linear		1./35.301	lours	
	Factors 1340 Hours	1.75	Difficulty Factor										
					0.74								
	750 STRAIGHT TIME BASE		Z REDUC TECH /		KC10H 771	Complex Steel	lworkers		Linear		305.62 H	lours	
	Factors 236 Hours	1.75	Difficulty Factor	-									
					0.74	l Heatcou	nt Cuts			T			
	751 OVERTIME BASE & PRE.	C120 D&D SKI	LLED TRADES		KC10H 771	Complex Steel	lworkers		Linear		14.00 H	lours	
	Factors 8 Hours	1.75	Difficulty Factor										
	751 OVERTIME BASE & PRE.	T050 RADIATI	ON CONTROL TE	CHNOLIGI	KC10H 771	Complex Steel	lworkers		Linear		108.50 H	lours	
	Factors 62 Hours	1.75	Difficulty Factor										
	A5H SUBCONTRACTED SRVS	E070 MECHAN	NICAL ENGINEER	S	K281S Build	dina 771 Closu	re Project		Linear		15.487.50	Oollars	
	Factors 118 Hours	75	Dollars per Hr		1.75					•			
Activity ID:		ve proc. piping, Sys 11		149	1.70	2		Cost Risk	4 Schedule R	isk 3			
_										··· ·			
Line Iten	n Description		Quantity Uni		Labor	Labor Hours	Labor Cost	Materials/ Sul		Total Prime	Burden C	ost Tota	al Cos
				Туре	Hours/Unit	Total	Total	Cost	& Escalation	Cost	1		
3	PPR		1.00 each	EE	2.564	2.564	57.777	16.53		74.314			102.22
SYS	Contingency And Escalation		1.00 ea	EE	0	0	0	(2.330	2.330		0	2.33
		Tot	al for Activity 1CA	C71113:		2.564	57.777	16.53	8 2.330	76.644	27.9	915	104.55
Line Item 3 -	PPR												
	presented herein.	reb or enobe and	lyses have bee			sion analys aining liqu			reflected in				cess
Resources	Cost Element		Skill		to the rem	aining liqu Departs	uids system		reflected in	the new b	uantity	lata <i>Units</i>	
Resources	Cost Element 750 STRAIGHT TIME BASE	C120 D&D SKI	Skill LLED TRADES	en applied	to the rem	aining liqu	uids system		reflected in	the new b	aseline o	lata <i>Units</i>	cess
Resources	Cost Element 750 STRAIGHT TIME BASE Factors 734 Hours	C120 D&D SKI	Skill LLED TRADES Difficulty Factor	en applied	KC10H 771	Departs Complex Steel	uids systen ment lworkers		reflected in <i>Curve</i> Linear	the new b	uantity 1.284.50	Units Hours	cess
Resources	Cost Element 750 STRAIGHT TIME BASE Factors 734 Hours 750 STRAIGHT TIME BASE	C120 D&D SKI 1.75 T050 RADIATI	Skill LLED TRADES Difficulty Factor ON CONTROL TE	en applied	KC10H 771	Departs Complex Steel	uids systen ment lworkers		reflected in	the new b	uantity	Units Hours	cess
Resources	Cost Element 750 STRAIGHT TIME BASE Factors 734 Hours 750 STRAIGHT TIME BASE Factors 286 Hours	C120 D&D SKI 1.75 T050 RADIATI	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor	en applied	KC10H 771	Departs Complex Steel	uids systen ment lworkers lworkers		reflected in Curve Linear Linear	the new b	uantity 1.284.50 -	Units Hours	ccess
Resources		C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HA	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH /	en applied CHNOLIGI RISK RED	KC10H 771	Departs Complex Steel	uids systen ment lworkers lworkers		reflected in <i>Curve</i> Linear	the new b	uantity 1.284.50	Units Hours	ccess
Resources	Cost Element 750 STRAIGHT TIME BASE Factors 734 Hours 750 STRAIGHT TIME BASE Factors 286 Hours	C120 D&D SKI 1.75 T050 RADIATI	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor	en applied CHNOLIGI RISK RED	KC10H 771	Departs Complex Steel Complex Steel Complex Steel	ment Ilworkers Ilworkers		reflected in Curve Linear Linear	the new b	uantity 1.284.50 -	Units Hours	cess
Resources	Total STRAIGHT TIME BASE Factors 734 Hours 750 STRAIGHT TIME BASE Factors 286 Hours 750 STRAIGHT TIME BASE Factors 306 Hours 760 STRAIGHT TIME BASE Factors 306 Hours 760 STRAIGHT TIME BASE 76	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor	en applied CHNOLIGI RISK RED	KC10H 771 KC10H 771 C0.74	Departs Complex Steel Complex Steel Heatcour	uids system ment lworkers lworkers nt Cuts		reflected in Curve Linear Linear	the new b	uantity 1.284.50 - 500.50 - 396.27 -	Units Hours Hours	cess
Resources	Cost Element 750 STRAIGHT TIME BASE Factors 734 Hours 750 STRAIGHT TIME BASE Factors 286 Hours 750 STRAIGHT TIME BASE Factors 306 Hours 751 OVERTIME BASE & PRE.	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor	ECHNOLIGI	KC10H 771 KC10H 771 C0.74	Departs Complex Steel Complex Steel Complex Steel	uids system ment lworkers lworkers nt Cuts		reflected in Curve Linear Linear	the new b	uantity 1.284.50 -	Units Hours Hours	cess
Resources	Total Cost Element	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor	CHNOLIGI	KC10H 771 KC10H 771 KC10H 771 C0.74 KC10H 771	Departs Complex Steel Complex Steel Heatcoul Complex Steel	ment Iworkers Iworkers Int Cuts Iworkers		Curve Linear Linear Linear	the new b	227.50	Units Hours Hours Hours	cess
Resources	Cost Element	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE	CHNOLIGI	KC10H 771 KC10H 771 KC10H 771 C0.74 KC10H 771	Departs Complex Steel Complex Steel Heatcoul Complex Steel	ment Iworkers Iworkers Int Cuts Iworkers		reflected in Curve Linear Linear Linear	the new b	uantity 1.284.50 - 500.50 - 396.27 -	Units Hours Hours Hours	cess
Resources	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor	CHNOLIGI	KC10H 771 KC10H 771 C10H 771 KC10H 771 KC10H 771 KC10H 771	Departs Complex Steel Complex Steel Complex Steel Heatcour Complex Steel Complex Steel	ment Iworkers Iworkers It Cuts Iworkers		Curve Linear Linear Linear Linear Linear	the new b	1.284.50 h 500.50 h 396.27 h 227.50 h	Units Hours Hours Hours Hours	cess
Resources	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor	CHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 KC10H 771 C10H 771 KC10H 771 KC10H 771 KC10H 771	Departs Complex Steel Complex Steel Complex Steel Heatcour Complex Steel Complex Steel	ment Iworkers Iworkers It Cuts Iworkers		Curve Linear Linear Linear	the new b	227.50	Units Hours Hours Hours Hours	cess
Resources	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor	CHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 KC10H 771 KC10H 771 CONTROL OF THE PROPERTY OF TH	Departs Complex Steel Complex Steel Complex Steel Heatcout Complex Steel Complex Steel Complex Steel	ment lworkers lworkers nt Cuts lworkers lworkers		Curve Linear Linear Linear Linear Linear	the new b	1.284.50 h 500.50 h 396.27 h 227.50 h	Units Hours Hours Hours Hours	cess
Resources	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Heatcour Complex Steel	ment Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers		Curve Linear Linear Linear Linear Linear Linear Linear Linear	the new b	1.284.50 500.50 396.27 227.50 87.50	Units Hours Hours Hours Hours Hours Hours Hours	cess
Resources	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Complex Steel Complex Steel Complex Steel Heatcout Complex Steel Complex Steel Complex Steel	ment Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers Ilworkers		Curve Linear Linear Linear Linear Linear	the new b	1.284.50 h 500.50 h 396.27 h 227.50 h	Units Hours Hours Hours Hours Hours Hours Hours	cess
Resources	Tools	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Complex Steel Complex Steel	ment Ilworkers		Curve Linear Linear Linear Linear Linear Linear Linear Linear	the new b	227.50 87.50 67.34	Units Hours	
Resources	Cost Element	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 1.75	Departs Complex Steel Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Heatcour Complex Steel	ment workers workers workers workers workers workers workers workers		Curve Linear Linear Linear Linear Linear Linear Linear Linear	the new b	1.284.50 500.50 396.27 227.50 87.50	Units Hours	ccess
Resources	Tools	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 1.75	Departs Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Complex Steel Complex Steel Difficulty Ging 771 Closu Ging 771 Closu Ging 771 Closu	ment lworkers lworkers lworkers lworkers lworkers lworkers lworkers lworkers re Project Factor re Project		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear	the new b	227.50 87.50 67.34	Units Hours	ccess
	Tools	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 E070 MECHAN 75 E130 OTHER	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor NICAL ENGINEER Dollars per hr ENGINEERS	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Complex Steel Complex Steel Difficulty Ging 771 Closu Ging 771 Closu Ging 771 Closu	ment lworkers lworkers lworkers lworkers lworkers lworkers lworkers lworkers re Project Factor re Project		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear	the new b	227.50 87.50 67.34	Units Hours	ccess
Line Item SY	Toolstellement	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 E070 MECHAN 75 E130 OTHER	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor ICAL ENGINEER Dollars per hr ENGINEERS	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Complex Steel Complex Steel Difficulty Ging 771 Closu Ging 771 Closu Ging 771 Closu	ment lworkers lworkers lworkers lworkers lworkers lworkers lworkers lworkers re Project Factor re Project		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear	the new b	227.50 87.50 67.34	Units Hours	ccess
Line Item SY: BOE	Tools	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 E070 MECHAN 75 E130 OTHER	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor NICAL ENGINEER Dollars per hr ENGINEERS Dollars per hr	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Complex Steel Complex Steel Difficulty Complex Steel Heatcour Complex Steel	ment Ilworkers Ire Project Factor Ire Project Factor		Curve Linear	the new b	227.50 87.50 67.34 16.275.00	Units Hours Hours Oblians Oblians	ccess
Line Item SY	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HA 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HA 1.75 T060 D&D HA 1.75 T060 D&D HA 75 E070 MECHAN 75 E130 OTHER I	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor ICAL ENGINEER Dollars per hr ENGINEERS	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 1.75	Departs Departs Departs Departs Complex Steel Complex Steel Heatcoul Complex Steel Complex Steel Heatcoul Jina 771 Closu Jina Jifficulty Jina Difficulty	ment Ilworkers Ire Project Factor Ire Project Factor		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear Curve	the new b	227.50 67.34 662.50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Units Hours Hours Oblians Units Units Units Units	ccess
Line Item SY: BOE	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 E070 MECHAN 75 E130 OTHER	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor NICAL ENGINEER Dollars per hr ENGINEERS Dollars per hr	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771	Departs Departs Departs Departs Complex Steel Complex Steel Heatcoul Complex Steel Complex Steel Heatcoul Jina 771 Closu Jina Jifficulty Jina Difficulty	ment Ilworkers Ire Project Factor Ire Project Factor		Curve Linear	the new b	227.50 87.50 67.34 16.275.00	Units Hours Hours Oblians Units Units Units Units	ccess
Line Item SY: BOE	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 E070 MECHAN 75 E130 OTHER I 75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor NICAL ENGINEER Dollars per hr ENGINEERS Dollars per hr	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 KC10H 771 KC10H 771 C72 KC10H 771 KC10H 771 KC10H 771 KC10H 771 KC10H 771 C72 K281S Build 1.75 K281S Build 1.75 K281S Build 1.75	Departs Complex Steel Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Heatcour Complex Steel Difficulty Difficulty Departs Departs	ment Ilworkers Ire Project Factor Ire Project Factor		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear	the new b	227.50 87.50 67.34 16.275.00 262.50 1.384.78 1.384.78 1.384.78 1.384.78 1.284.50 1.384.78	Units Hours	ccess
Line Item SY: BOE	Cost Element T50	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HA 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T050 RADIATI 1.75 T060 D&D HA 1.75 T060 D&D HA 1.75 T060 D&D HA 75 E070 MECHAN 75 E130 OTHER I	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor NICAL ENGINEER Dollars per hr ENGINEERS Dollars per hr	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI	KC10H 771 1.75	Departs Complex Steel Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Heatcour Complex Steel Difficulty Difficulty Departs Departs	ment Ilworkers Ire Project Factor Ire Project Factor		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear Curve	the new b	227.50 67.34 662.50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Units Hours	cess
Line Item SY: BOE	Cost Element	C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 C120 D&D SKI 1.75 T050 RADIATI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 T060 D&D HAI 1.75 E070 MECHAN 75 E130 OTHER I 75	Skill LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor LLED TRADES Difficulty Factor ON CONTROL TE Difficulty Factor Z REDUC TECH / Difficulty Factor Z REDUC TECH / Difficulty Factor NICAL ENGINEER Dollars per hr ENGINEERS Dollars per hr	ECHNOLIGI CHNOLIGI CHNOLIGI CHNOLIGI SS	KC10H 771 KC10H 771 KC10H 771 C72 KC10H 771 KC10H 771 KC10H 771 KC10H 771 KC10H 771 C72 K281S Build 1.75 K281S Build 1.75 K281S Build 1.75	Departs Complex Steel Complex Steel Complex Steel Heatcour Complex Steel Complex Steel Heatcour Complex Steel Difficulty Difficulty Departs Departs	ment Ilworkers Ire Project Factor Ire Project Factor		Curve Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear Linear	the new bo	227.50 87.50 67.34 16.275.00 262.50 1.384.78 1.384.78 1.384.78 1.384.78 1.284.50 1.384.78	Units Hours	

WBS No: 1CAC11 Activity ID: 1CAC71114

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Baseline Devl

11 10	Jimei	10/10				
Acti	vity Filter	*	-	Ste	arts In FY	

				Activity Filler				_ Starts In 1 I				
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4	Closure Documentation	1.00	each	EE	5	5	148	1.500	0	1.648	71	1.718
SYS					0	0	0	0	92	92	0	92
	Total for Activity 1CAC71114:							1.500	92	1.740	71	1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00	Hours
1	Factors	5 Hours		1 Difficulty Factor					
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00	Dollars
1	Factors	20 Hours		75 Dollars per Hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

ces	Skill Skill			Department	Curve	Quantity	Units		
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	55.76	Dollars
	Factors	55.7588 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	36.13	Dollars

Factors 36.1320 Dollars

WBS No:	1CAC15	Title:	Sys 15 - Pu Nitrate Transfer
Activity ID:	1CAC71151	Description:	Plan/Eng prep to drain Sys 15

4	Activity ID: 1CA	C71151 Description: Plan/Eng prep to drain Sys 1	5, Res. Dis	ssolution					Cost Risk	1 Schedule R	Risk 1		
	Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
					Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
	1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	22.725	153.697
	SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1.103	1.103	0	1.103
		Tot	al for Activ	ity 1CAC711	51.		1 729	46 717	84 255	1 103	132 075	22 725	154 800

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

		ı						
es	Cost Element		Skill		Department	Curve	Ouantity	Units
7	50 STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00	Hours
Fac	tors 110 Hours		1 Difficulty Factor					
7	50 STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00	Hours
Fac	tors 52 Hours		1 Difficulty Factor					
7	50 STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00	Hours
Fac	tors 33 Hours		1 Difficulty Factor					
7	50 STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00	Hours
Fac	tors 406 Hours		1 Difficulty Factor					
7	50 STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00	Hours
Fac	tors 8 Hours		1 Difficulty Factor					
7	50 STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00	Hours
Fac	tors 65 Hours		1 Difficulty Factor					
7	50 STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00	Hours
Fac	tors 27 Hours		1 Difficulty Factor					

WBS No: 1CAC15 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71151 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE P170 OTHER ADMINISTRATIVE & PROFE | K281S | Building 771 Closure Project 1.00 Hours Linear Hours Difficulty Factor S100S SSOC Salaried 3.00 Hours 750 STRAIGHT TIME BASE S010 CHEMISTS Linear Difficulty Factor Hours 750 STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 286.00 Hours 286 Hours Difficulty Factor Factors 750 STRAIGHT TIME BASE D&D HAZ REDUC TECH / RISK RED 600.00 Hours KC10H 771 Complex Steelworkers Linear 600 Hours Difficulty Factor 751 OVERTIME BASE & PRE RADIATION CONTROL TECHNOLIGI 50.00 Hours T050 KC10H 771 Complex Steelworkers Linear Factors 50 Hours Difficulty Factor D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 88.00 Hours 751 OVERTIME BASE & PRE Linear 88 Hours Difficulty Factor MECHANICAL ENGINEERS 27.525.00 Dollars A52 TENERA K281S Building 771 Closure Project Linear 367 Hours 75 Dollars per hr Difficulty Factor Factors A52 TENERA E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 6 225 00 Dollars 83 Dollars per hr Difficulty Factor Factors Hours A57 LATA TECHNICAL WRITERS AND EDITOR K281S Building 771 Closure Project Linear 11.175.00 Dollars 149 Hours Dollars per hr Difficulty Factor Factors A5H SUBCONTRACTED SRVS NUCLEAR (CRITICALITY) ENGINEER E080 K281S Building 771 Closure Project 14.580.00 Dollars 162 Hours Dollars per hr Difficulty Factor Factors A5H SUBCONTRACTED SRVS P070 COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project 11.250.00 Dollars Linear 150 Hours 75 Dollars per hr Difficulty Factor A5H SUBCONTRACTED SRVS P080 HEALTH PHYSICISTS K281S Building 771 Closure Project 13.500.00 Dollars Linear Dollars per hr Difficulty Factor 180 Hours 75 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Units Curve CON CONTINGENCY 0000 NONE ZDEPT No Department 642.96 Dollars Linear Factors 642.957 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 460.38 Dollars Linear Factors 460.377 Dollars Activity ID: 1CAC71152 Description: Tap & drain System 15, Residue Dissolution Cost Risk 4 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Quantity Hours/Unit Type Total Total Cost & Escalation Cost Tap & Drain 1.00 each EE 1.372 1.372 28.915 7.434 36.349 13.792 50.141 Contingency And Escalation FF 2.731 SYS 1.00 ea Λ 0 2.731 0 2.731 Total for Activity 1CAC71152: 1.372 28.915 7.434 2.731 39.080 13.792 52.872 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Department Curve Quantity Units 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 36.12 Hours Linear

RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers

T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers

Difficulty Factor

Difficulty Factor

Difficulty Factor

T050

43

354

Factors 1340 Hours

Factors

750 STRAIGHT TIME BASE

750 STRAIGHT TIME BASE

Hours

Hours

Page 8 of 85 6/22/00 8:43:49 PM *OFFICIAL USE ONLY*

Heatcount Cuts

Linear

Linear

297.36 Hours

832.94 Hours

WBS No: Activity ID:	1CAC15 1CAC71152				ı			Closure P		WB		aseline Devl CAC	S	arts In FY *	
	750 STRAIGHT TII	MF BASE	T060	D&D HAZ	REDUC:	TECH / RISK	RFD	KC10H 771	Complex Stee		ivii v I iiiei	Linear	51	146.70 Hours	
		ours		0.84	Difficulty										
								0.7	4 Heatcou	nt Cuts					
	751 OVERTIME B		C120	D&D SKII				KC10H 771	Complex Stee	lworkers		Linear		6.72 Hours	
		ours		0.84	Difficulty		ı							<u> </u>	
	751 OVERTIME BA		T050				OLIGI	KC10H 771	Complex Stee	lworkers		Linear		52.08 Hours	
		ours	F070	0.84	Difficulty			1/0040 D :	" 774.01	· ·				7 40 4 00 15 11	
	A5H SUBCONTRA	OTED SRVS I	E070	MECHAN 75	Dollars			K281S Buil 0.8	dina 771 Closu 4 Difficulty			Linear		7.434.00 Dollar	S
l ine Itom SVS	Factors 118 H - Contingency And Es			75	Dollars	pei ni		0.8	4 Difficulty	racioi					
BOE	- Contingency And La	calation													
Resources		Element			Skill			70 FDT 11	Depart	ment		Curve	0	uantity Uni	
	CON CONTINGENO		0000	NONE				ZDEPT No	Department			Linear		1.676.31 Dollar	S
	Factors 1676.31 D		0000	NONE				ZDEPT No	Danarimani			Linear		1.054.36 Dollar	
	Factors 1054.36 D		0000	INOINE				ZDEPT INO	Department			Linear		1.054.36ID0llal	S
Activity ID:		Description: Remove p	roc ninir	na Svs 15	Residue	Dissolution					Cost Risk	4 Schedule F	Risk 3		
	10/10/11/00		700. pipii	14, 070.10		Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub		Total Prime	Burden Cost	Total Cost
Line Item		Description			Quantity	Units	Type	Labor Hours/Unit	Total	Total	Cost	& Escalation	Cost	Buraen Cost	Total Cost
3	PPR				1.00	each	EE	1.231	1.231	27.733			35.671	13.229	48.899
SYS	Contingency And E	scalation			1.00		FF	1.231	0	0			2.663		2.663
				Tota		ity 1CAC7115	53:		1.231	27.733	7.938		38.334	13.229	51.563
Line Item 3 - F	PPR										•	"	•		•
		modified to take ad stems. The results													
Resources	Cost	Element			Skill				Depart	ment		Curve	0	uantity Uni	ts
	750 STRAIGHT TI		C120	D&D SKII				KC10H 771	Complex Stee	lworkers		Linear		616.56 Hours	
		ours		0.84	Difficulty										
	750 STRAIGHT TI		T050				OLIGI	KC10H 771	Complex Stee	lworkers		Linear		240.24 Hours	
	Factors 286 H	ours	T060	0.84	Difficulty	/ Factor TECH / RISK	DED.	1404011 774	Complex Stee					190.21 Hours	
		OURS	1060	0.84	Difficulty		KED	KC10H 1//1	Complex Stee	Iworkers		Linear		190.211Hours	
	raciors 300 n	ours		0.04	Dillicuit	y Factor		0.7	4 Heatcou	nt Cuts					
	751 OVERTIME BA	ASF & PRF	C120	D&D SKII	I FD TRA	DES			Complex Stee			Linear		109.20 Hours	
		ours		0.84	Difficulty										
	751 OVERTIME B	ASE & PRE.	T050	RADIATIO	ON CONT	ROL TECHNO	OLIGI	KC10H 771	Complex Stee	lworkers		Linear		42.00 Hours	
	Factors 50 H	ours		0.84	Difficulty	v Factor	1								
	751 OVERTIME B	ASE & PRE.	T060				RED	KC10H 771	Complex Stee	lworkers		Linear		32.32 Hours	
	Factors 52 H	ours		0.84	Difficulty	/ Factor									
							I	0.7							
	A57 LATA		E070	MECHAN					dina 771 Closu			Linear		7.812.00 Dollar	S
		ours CTED CDVC	F420	75 OTHER E	Dollars			0.8				line		126.00 Dollar	
	A5H SUBCONTRA Factors 2 H	OTED SRVS I	E130	75	NGINEER Dollars			K281S Buil 0.8	dina 771 Closu 4 Difficulty			Linear		1∠6.00IDollar	S
l ine Item SVS	Factors 2 H			10	Dollars	hei III		0.8	+ Dilliculty	i acioi					
BOE	Sommingency And Es	ouldion													
					A		1		_						
Resources		Element	0000	NONE	Skill			ZDEPT No	Depart	ment		Curve	0	uantity Uni	
	CON CONTINGENO		0000	INONE				ZDEPT INO	Department			Linear		1.634.79 Dollar	S
	1004.13 D	VIIUI 3		•				0 (05				0/00/00 0 40	•	·	<u> </u>

Page 9 of 85 6/22/00 8:43:49 PM *OFFICIAL USE ONLY*

WBS No: 1CAC15 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71153 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY ESC ESCALATION 0000 NONE ZDEPT No Department 1.028.25 Dollars Linear Factors 1028.25 Dollars Activity ID: 1CAC71154 Description: Finalize closure doc., Sys. 15, Res. Dissolution Cost Risk 2 Schedule Risk 3 BOELabor Hours Labor Cost Materials/ Sub Contingency Total Prime Description Labor Burden Cost Total Cost Line Item **Quantity** Units Hours/Unit TypeTotal Total Cost & Escalation Cost 1.00 each EE 148 1.500 71 Closure Documentation 1.648 1.718 Contingency And Escalation SYS 1.00 ea FF n 92 92 0 92 Total for Activity 1CAC71154: 148 1.500 92 1.740 71 1.810 Line Item 4 - Closure Documentation The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Element Skill Units Resources Department Curve 750 STRAIGHT TIME BASE E050 ENVIRONMENTAL ENGINEERS K281S Building 771 Closure Project Linear 5.00 Hours Difficulty Factor 5 Hours A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 1.500.00 Dollars Linear 20 Dollars per Hr Difficulty Factor Factors Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Department Curve Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 55.76 Dollars 55.7588 Dollars Factors ESC ESCALATION 0000 NONE ZDEPT No Department 36 13 Dollars Linear 36.1320 Dollars WBS No: 1CAC16 Svs 16 - Part V Leach Rm 114 Activity ID: 1CAC71161 Description: Plan/Eng prep to drain System 16. Part V Leach Cost Risk 1 Schedule Risk Line Item Description Unite BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Ouantity** Total Type Hours/Unit & Escalation **Total** Cost Cost FF 1 454 39 284 70.850 110 134 19 171 Planning & Engineering Prep to Drain 1 00 each 1 454 0 129 305 1.454 39.284 70.850 19.171 129.305 Total for Activity 1CAC71161: 110.134 Line Item 1 - Planning & Engineering Prep to Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Element **Ouantity** Units Resources Department Curve STRAIGHT TIME BASE ENVIRONMENTAL ENGINEERS K281S Building 771 Closure Project Linear 92.50 Hours 110 Hours Difficulty Factor 0.8409 5/22/00 togo Factor NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project 750 STRAIGHT TIME BASE Linear 43.73 Hours 52 Difficulty Factor 0.8409 5/22/00 togo Factor Hours 27.75 Hours 750 SAFETY ENGINEERS K281S Building 771 Closure Project STRAIGHT TIME BASE Linear 33 Hours Difficulty Factor 0.8409 5/22/00 togo Factor Factors 750 STRAIGHT TIME BASE E130 OTHER ENGINEERS K281S Building 771 Closure Project 341.41 Hours Linear Factors 406 Hours Difficulty Factor 0.8409 5/22/00 togo Factor 750 STRAIGHT TIME BASE M020 MANAGERS (GRADE 69 - 72) K281S Building 771 Closure Project 6.73 Hours Linear 8 Hours Difficulty Factor 0.8409 5/22/00 togo Factor Factors 750 STRAIGHT TIME BASE INDUSTRIAL HYGIENISTS K281S Building 771 Closure Project Linear 54 66 Hours

Difficulty Factor

65

Factors

Hours

Page 10 of 85 6/22/00 8:43:50 PM *OFFICIAL USE ONLY*

0.8409 5/22/00 todo Factor

1CAC16 WBS No: 1CAC71161 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Baseline Devl Proiect 1CAC WBS Filter

	Daseille Cost a	Activ	itv Filter *	Starts In FY *
750 STRAIGHT TIME BASE	P150 TRAINERS	K281S Building 771 Closure Project	Linear	22.70 Hours
Factors 27 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	K281S Building 771 Closure Project	Linear	0.84 Hours
Factors 1 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	S010 CHEMISTS	S100S SSOC Salaried	Linear	2.52 Hours
Factors 3 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	240.50 Hours
Factors 286 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	504.54 Hours
Factors 600 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	42.05 Hours
Factors 50 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	74.00 Hours
Factors 88 Hours	1 Difficulty Factor	0.8409 5/22/00 togo Factor		
A52 TENERA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	23.145.77 Dollars
Factors 367 Hours	75 Dollars per hr	1 Difficulty Factor	0.8409 5/22/00 togo	Factor
A52 TENERA	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	5.234.60 Dollars
Factors 83 Hours	75 Dollars per hr	1 Difficulty Factor	0.8409 5/22/00 togo	Factor
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	K281S Building 771 Closure Project	Linear	9.397.06 Dollars
Factors 149 Hours	75 Dollars per hr	1 Difficulty Factor	0.8409 5/22/00 togo	Factor
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	R K281S Building 771 Closure Project	Linear	12.260.32 Dollars
Factors 162 Hours	90 Dollars per hr	1 Difficulty Factor	0.8409 5/22/00 togo	Factor
A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN	K281S Building 771 Closure Project	Linear	9,460.13 Dollars
Factors 150 Hours	75 Dollars per hr	1 Difficulty Factor	0.8409 5/22/00 togo	Factor
A5H SUBCONTRACTED SRVS	P080 HEALTH PHYSICISTS	K281S Building 771 Closure Project	Linear	11,352.15 Dollars
Factors 180 Hours	75 Dollars per hr	 Difficulty Factor 	0.8409 5/22/00 togo	Factor
1CAC71162 Description: Tap & dr	frain System 16. Part V Leach		Cost Risk 4 Schedule Risk	3

Activity ID: 1CAC71162 Description: Tap & drain System 16, Part V Leach Cost Risk 4 Schedule Risk

Line Item	Description	Quantity Un	its BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
			Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00 each	EE	1,258	1,258	26,505	6,815	0	33,320	12,643	45,963
SYS	Contingency And Escalation	1.00 ea	EE	0	0	0	0	2.503	2.503	0	2.503
	Tot	1.258	26.505	6.815	2.503	35.823	12.643	48.466			

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

s		Cost Element		. Skill		Department	Curve	Ouantity Units
L	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	33.11 Hours
F	actors	43 Hours		0.77 Difficulty Factor				
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	272.58 Hours
F	actors	354 Hours	ı	0.77 Difficulty Factor				
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	763.53 Hours
F	actors	1340 Hours		0.77 Difficulty Factor				
_		T		T		0.74 Heatcount Cuts		
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	134.47 Hours
F	actors	236 Hours		0.77 Difficulty Factor				
		T			1	0.74 Heatcount Cuts		
	751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	6.16 Hours
F	actors	8 Hours	ı	0.77 Difficulty Factor				
	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	47.74 Hours
F	actors	62 Hours		0.77 Difficulty Factor				

WBS No: 1CAC16 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71162 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** <u>Activi</u>ty Filter Starts In FY A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 6.814.50 Dollars Linear 118 Hours 75 Dollars per Hr 0.77 Difficulty Factor Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Curve Units Department CON CONTINGENCY 0000 NONE ZDEPT No Department 1.536.62 Dollars Linear 1536.62 Dollars ESC ESCALATION ZDEPT No Department 966.50 Dollars 0000 NONE Linear Factors 966.497 Dollars Activity ID: 1CAC71163 Description: Remove proc. piping, System 16, Part V Leach Cost Risk 4 Schedule Risk 3 Labor Line Item BOE Labor Hours Labor Cost Materials/ Sub Total Prime Description **Ouantity** Units Contingency Burden Cost Total Cost Cost & Escalation Type Hours/Unit **Total Total** Cost 1.00 each EE 1.128 1.128 25.422 7.277 0 32.698 12.126 44.825 2.441 SYS Contingency And Escalation 1.00 ea 2.441 2.441 0 Λ 0 Total for Activity 1CAC71163: 1.128 25.422 7.277 2.441 35.139 12.126 47.266 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 565.18 Hours 734 Hours Difficulty Factor STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 220.22 Hours Linear 286 Hours Difficulty Factor D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 174.36 Hours 750 STRAIGHT TIME BASE Linear 306 Difficulty Factor Factors Hours 0.77 0.74 Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 100.10 Hours Linear 130 Hours 0.77 Difficulty Factor 38.50 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 50 Difficulty Factor Factors Hours OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 29 63 Hours 751 Linear Factors 52 Hours Difficulty Factor 0.74 Heatcount Cuts A57 LATA F070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 7 161 00 Dollars Linear Dollars per hr Difficulty Factor Factors 124 Hours 75 0.77 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 115 50 Dollars Linear 2 Hours 75 Dollars per hr 0.77 Difficulty Factor Factors Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 1.498.56 Dollars Factors 1498.56 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 942.56 Dollars

BOE

Type

EE

EE

Labor

Hours/Unit

5

0

Labor Hours

Total

5

0

942.559 Dollars

Closure Documentation

Contingency And Escalation

Description

Description: Finalize closure doc., System 16, Part V Leach

Ouantity

1.00 each

1.00 ea

Factors

Activity ID: 1CAC71164

Line Item

SYS

1.500

0

2 Schedule Risk

0

92

Contingency

& Escalation

3

1.648

92

Burden Cost

71

0

Total Cost

1.718

92

Total Prime

Cost

Cost Risk

Materials/ Sub

Cost

Labor Cost

Total

148

0

WBS No: 1CAC16 Activity ID: 1CAC71164

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71164:

Total for Activity 1CAC71212:

Proiect WBS Filter

Cost Risk

7.467

Materials/ Sub

Cost

1.920

1 920

Baseline Devl 1CAC

4 Schedule Risk

Contingency

& Escalation

3

9.387

9 387

Burden Cost

3.644

3.644

Total Cost

13.030

13.030

Total Prime

Cost

Activity Filter * Starts In FY * 148 1.500 92 1.740 71 1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

s		Cost Element		Skill			Department	Curve	Quantity	Units	
	750 STRAIG	HT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building	771 Closure Proiect	Linear	5.00	Hours	
	Factors 5	Hours		1 Difficulty Factor							
	A5H SUBCON	NTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building	771 Closure Proiect	Linear	1.500.00	Dollars	
	Factors 20	Hours		75 Dollars per Hr		1	Difficulty Factor				

Line Item SYS - Contingency And Escalation

BOE

Resources

WBS No: 1CAC21

Activity ID: 1CAC71212

es	Cost Element	Skill			Department	Curve	Quantity	Units
C			NONE	ZDEPT	No Department	Linear	55.76	Dollars
Fac	tors 55.7588 Dollars							
	SC ESCALATION	0000	NONE	7DFPT	No Department	Linear	36 13	Dollars

Factors 36.1320 Dollars

2	Tap & Drain	1 00	each	EE	354	354	7,467	ľ
				Type	Hours/Unit	Total	Total	ı
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	

Sys 21 - 12N Nitric Acid

Description: Tap & drain System 21, 12N Nitric Acid

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

354

Resources

_											
es		Cost Element		Skill			Department		Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Com	plex Steelworkers		Linear	9.33	Hours
ز	Factors	43 Hours		1.62 Difficulty Factor		0.1339	5/22/00 togo Factor				
L	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	plex Steelworkers		Linear	76.79	Hours
ز	Factors	354 Hours		1.62 Difficulty Factor		0.1339	5/22/00 togo Factor				
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	plex Steelworkers		Linear	215.10	Hours
	Factors	1340 Hours		1.62 Difficulty Factor		0.1339	5/22/00 togo Factor				
_					,	0.74	Heatcount Cuts				
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	plex Steelworkers		Linear	37.88	Hours
	Factors	236 Hours		1.62 Difficulty Factor		0.1339	5/22/00 togo Factor				
_					,	0.74	Heatcount Cuts				
L	751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Com	plex Steelworkers		Linear	1.74	Hours
نے	Factors	8 Hours		1.62 Difficulty Factor	,	0.1339	5/22/00 togo Factor				
L	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	plex Steelworkers		Linear	13.45	Hours
نے	Factors	62 Hours		1.62 Difficulty Factor	,	0.1339	5/22/00 togo Factor				
L	A5H	SUBCONTRACTED SRVS	E070	MECHANICAL ENGINEERS	K281S	Buildina	771 Closure Proiect		Linear	1.919.72	Dollars
	Factors	118 Hours		75 Dollars per Hr		1.62	Difficulty Factor		0.1339 5/22/00 too	no Factor	
- 4	~ . ~	040		0 . 04 405151111111111111111111111111111111				C PLI	4 0 1 1 1 2 1	•	

Activity ID: 1CAC71213 Description: Remove proc. piping, System 21, 12N Nitric Acid Cost Risk 4 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
3	PPR	1.00	each	EE	2.124	2.124	47.869	13.702	0	61.570	23.360	84.931

WBS No: 1CAC21 Activity ID: 1CAC71213

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71213:

Proiect WBS Filter Baseline Devl 1CAC

Activity Filter * Starts In FY * 47,869 13,702 0 61,570 23,360 84,931

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

2.124

Resources

es	Cost Element		Skill			Department	C	Curve	Ouantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Cor	nplex Steelworkers	Li	inear	1.064.23	Hours
Factors	734 Hours		1.62 Difficulty Factor		0.895	5/22/00 togo Factor				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Cor	nplex Steelworkers	Li	inear	414.67	Hours
Factors	286 Hours		1.62 Difficulty Factor		0.895	5/22/00 togo Factor				
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Cor	nplex Steelworkers	Li	inear	328.32	Hours
Factors	306 Hours		1.62 Difficulty Factor		0.895	5/22/00 togo Factor				
					0.74	Heatcount Cuts				
751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Cor	nplex Steelworkers	Li	inear	188.49	Hours
Factors	130 Hours		1.62 Difficulty Factor		0.895	5/22/00 togo Factor				
751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Cor	nplex Steelworkers	Li	inear	72.49	Hours
Factors	50 Hours		1.62 Difficulty Factor		0.895	5/22/00 togo Factor				
751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Cor	nplex Steelworkers	Li	inear	55.79	Hours
Factors	52 Hours		1.62 Difficulty Factor		0.895	5/22/00 togo Factor				
					0.74	Heatcount Cuts				
A57	LATA	E070	MECHANICAL ENGINEERS	K281S	Buildina	771 Closure Proiect	Li	inear	13.484.07	Dollars
Factors	124 Hours		75 Dollars per hr		1.62	Difficulty Factor	0.895	5/22/00 toao F	actor	
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Buildina	771 Closure Proiect	Li	inear	217.49	Dollars
Factors	2 Hours		75 Dollars per hr		1.62	Difficulty Factor	0.895	5/22/00 togo F	actor	

	raciors	_ r	Tours		75	Dollars per ni
Activity ID:	1CAC71214		Description:	Finalize closure doc	Svs 21	12N Nitric Acid

				_,	
Cost Risk	2	Sche	dule	Risk	3

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4	Closure Documentation	1.00	each	EE	5	5	148	1.500	0	1.648	72	1.719
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	33	33	0	33
	Tot	al for Activit	ty 1CAC712	14:		5	148	1.500	33	1.681	72	1.752

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

ces		Cost Element		Skill		Department	Curve	Quantity Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00 Hours
	Factors	5 Hours		1 Difficulty Factor				
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00 Dollars
	Factors	20 Hours		75 Dollars per Hr		1 Difficulty Factor		

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	19.44	Dollars
_	Factors	19.4417 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	13.71	Dollars

Factors 13.7053 Dollars

WBS No: 1CAC22 Title: Sys 22 - HF

Activity ID: 1CAC71221 Description: Plan/Eng prep to drain Svs. 22, HF Cost Risk 1 Schedule Risk

WBS No: 1CAC22 Activity ID: 1CAC71221

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Baseline Devl 1CAC

							Act	ivity Filter *		St	arts In FY *	
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	22.533	153.505
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3.979	3.979	0	3.979
	Tot	1.729	46.717	84.255	3.979	134.951	22.533	157.484				

Line Item 1 - Planning & Engineering Prep to Drain

BOE

EThe original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	<i>Ouantity</i>	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00	Hours
یے	Factors	110 Hours		1 Difficulty Factor					
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00	Hours
ام	Factors	52 Hours	•	1 Difficulty Factor					
L	750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00	Hours
4	Factors	33 Hours		1 Difficulty Factor					
L	750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00	Hours
	Factors	406 Hours		1 Difficulty Factor					
	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00	Hours
ď	Factors	8 Hours		1 Difficulty Factor					
L	750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00	Hours
ř	Factors		1	1 Difficulty Factor		1			
L	750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00	Hours
ď	Factors		1	1 Difficulty Factor		1			
L	750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00	Hours
ŕ	Factors		1	1 Difficulty Factor		1		1	
L	750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00	Hours
ŕ	Factors		1	1 Difficulty Factor		1		1	
L	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	286.00	Hours
ŕ	Factors			1 Difficulty Factor					
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	600.00	Hours
ď	Factors	600 Hours		1 Difficulty Factor					
L	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	50.00	Hours
ŕ	Factors		1	1 Difficulty Factor				1	
L	751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	88.00	Hours
ŕ	Factors		1	1 Difficulty Factor				1	
L	A52	TENERA	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Proiect	Linear	27.525.00	Dollars
ď	Factors			75 Dollars per hr		1 Difficulty Factor			
L	A52	TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	6.225.00	Dollars
ď	Factors			75 Dollars per hr		1 Difficulty Factor		1	
L	A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	K281S	Building 771 Closure Project	Linear	11.175.00	Dollars
ď	Factors			75 Dollars per hr		1 Difficulty Factor		1	
L	A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	14.580.00	Dollars
ď	Factors			90 Dollars per hr		1 Difficulty Factor		1	
L	A5H	SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	11.250.00	Dollars
ŕ	Factors			75 Dollars per hr		1 Difficulty Factor	T	1	
L	A5H	SUBCONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Building 771 Closure Project	Linear	13.500.00	Dollars
1	Factors	180 Hours		75 Dollars per hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

DOL						
Resources	Cost Element	Skill	Department	Curve	Quantity	Units

WBS No: Activity ID:	1CAC22 1CAC71221			Rockv Flats Closure Project Baseline Cost and Basis of Estimate Project WBS Filter Activity Filter					S Filter 1C					
			I						Act	ivity Filter *		S		
	CON CONTINGENCY	0000	NONE				ZDEPT No	Department			Linear		2.318.54 Dolla	rs
	Factors 2318.54 Dollars													
	ESC ESCALATION	0000	NONE				ZDEPT No	Department			Linear		1.660.15 Dolla	rs
Activity ID:	Factors 1660.15 Dollars 1CAC71222 Description: Tap & d	rain Svste	m 22. HF							Cost Risk	4 Schedule R	risk 3		
Line Iten	n Description			Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
	,			~ ,		Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain			1.00	each	EE	2.711	2.711	57.141	14.691	0	71.832	27.256	99.089
SYS	Contingency And Escalation			1.00	ea	EE	0	0	0	0	5.396	5.396	0	5.396
			Tot	al for Activi	ty 1CAC712	222:		2.711	57.141	14.691	5.396	77.229	27.256	104.485
Line Item 2 -	Tap & Drain													
BOE	The original resources and skill question two years ago. During the last yet liquids has been modified to take a to the various systems. The result presented herein.	ar, a de advantag	tailed a	analysis actual	of actua	al cost compari	s and time son, regre	s by labor ssion analy	was conduct sis to dete	ed upon com	pleted syst driving fac	ems. The tors, and	original bas	seline for of access
Resources	S Cost Element			Skill				Depart	ment		Curve	(Quantity Un	its
	750 STRAIGHT TIME BASE	C120	D&D SKI	LLED TRA	DES		KC10H 771	Complex Stee			Linear	•	71.38 Hour	
	Factors 43 Hours		1.66	Difficulty							=111001		7 1100111001	<u>-</u>
	750 STRAIGHT TIME BASE	T050				NOI IGI	KC10H 771	Complex Stee	lworkers		Linear		587.64 Hour	s
	Factors 354 Hours		1.66	Difficulty							=111001		001101111001	
	750 STRAIGHT TIME BASE	T060				KRFD	KC10H 771	Complex Stee	lworkers		Linear		289.90 Hour	9
	Factors 236 Hours		1.66	Difficulty						<u>.</u>			20010011103 1	
	750 STRAIGHT TIME BASE	T060	Do D LIA	7 DEDUC 3	FEOUL/ DIO	W DED	0.7	4 Heatcou Complex Stee			Linear		1.646.06 Hour	
	Factors 1340 Hours	1 1060	1.66	Difficulty		K KED	KC10H 1//1	Complex Stee	elworkers		Linear		1.646.06IHOUR	S
							0.7	4 Heatcou	int Cuts					
	751 OVERTIME BASE & PRE.	C120	D&D SK	LLED TRA	DES		KC10H 771	Complex Stee	lworkers		Linear		13.28 Hour	s
	Factors 8 Hours		1.66	Difficulty	Factor									
	751 OVERTIME BASE & PRE.	T050	RADIATI	ON CONTR	ROL TECH	NOLIGI	KC10H 771	Complex Stee	lworkers		Linear		102.92 Hour	s
	Factors 62 Hours		1.66	Difficulty	Factor									
	A5H SUBCONTRACTED SRVS	E070	MECHAI	NICAL ENG	SINEERS		K281S Bui	ldina 771 Closu	ıre Proiect		Linear		14.691.00 Dolla	rs
	Factors 118 Hours		75	Dollars r	oer Hr		1.6	6 Difficulty	/ Factor					
Line Item SY	'S - Contingency And Escalation													
Resources	S Cost Element			Skill				Depart	ment		Curve	(Quantity Un	its
	CON CONTINGENCY	0000	NONE				ZDEPT No	Department			Linear		3.312.71 Dolla	rs
	Factors 3312.71 Dollars									·				
	ESC ESCALATION	0000	NONE				ZDEPT No	Department			Linear		2.083.62 Dolla	rs
	Factors 2083.62 Dollars										=111001			
	Taciors 2000:02 Dollaro	nroc nin	ing, Sys. 2	2, HF						Cost Risk	4 Schedule R	risk 3		
Activity ID:	1CAC71223 Description: Remove	, pioc. pip								M	C	Total Prime	1	m . 1.0
Activity ID: Line Item		, proc. pip		Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation		Burden Cost	Total Cost
	n Description	, ргос. ргр		~ ,		Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
_		, proc. pro		~ ,	each			<i>Total</i> 2.432			& Escalation		26.142	96.635 5.263

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

WBS No: Activity ID:	1CAC22 1CAC71223		Rockv Flats Baseline Cost a			Proiect WBS Filter	Baseline Devl 1CAC		
_			~~~	1	_	Activity Filter	*	Starts In FY	*
Resources	750 STRAIGHT TIME BASE	C120 D&D SKI	Skill	1/04011 774	Department Complex Steelwork		Curve Linear		Units
	Factors 734 Hours	1.66	Difficulty Factor	KCIUH I//I	Complex Steelwork	Keis	Linear	1.218.44 Ho	burs
	750 STRAIGHT TIME BASE		ON CONTROL TECHNOLIGI	KC10H 771	Complex Steelwork	(Are	Linear	474.76 Ho	nure
	Factors 286 Hours	1.66	Difficulty Factor	TROTOIT III	COMDICA OLCCIWON	(CIS	Lincal		Juij
	750 STRAIGHT TIME BASE		Z REDUC TECH / RISK RED	KC10H 771	Complex Steelwork	ers	Linear	375.89 Ho	ours
	Factors 306 Hours	1.66	Difficulty Factor						
				0.7	4 Heatcount Cu	uts			
	751 OVERTIME BASE & PRE.	C120 D&D SKI	LLED TRADES	KC10H 771	Complex Steelwork	cers	Linear	215.80 Ho	ours
	Factors 130 Hours	1.66	Difficulty Factor				1		
	751 OVERTIME BASE & PRE.	T050 RADIATI	ON CONTROL TECHNOLIGI	KC10H 771	Complex Steelwork	kers	Linear	83.00Hc	ours
	Factors 50 Hours	1.66	Difficulty Factor						
	751 OVERTIME BASE & PRE.		Z REDUC TECH / RISK RED	KC10H 771	Complex Steelwork	kers	Linear	63.88 Ho	ours
	Factors 52 Hours	1.66	Difficulty Factor						
	A57 LATA	E070 ME011A	HOAL ENGINEERS	0.7				45 400 00 0	
	7.507 1=7.777		NICAL ENGINEERS		dina 771 Closure Pi		Linear	15.438.00 Do	ollars
	Factors 124 Hours A5H SUBCONTRACTED SRVS	75 E130 OTHER	Dollars per hr	1.6	6 Difficulty Factoring 771 Closure Programme 6 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		Linear	249.00 Do	ollare
	Factors 2 Hours	75	Dollars per hr	1.6			Lilical	249.00100	Jilais
Line Item SYS	6 - Contingency And Escalation	73	Donars per m	1.0	b billiouity i ac	101			
BOE	Contingency rana accumulation								
	C .Fl		Skill		ъ				**
Resources	CON CONTINGENCY	0000 NONE	Skill	ZDEPT No	Department Department		Curve Linear	Ouantity 3,230,66 Do	Units
	Factors 3230.66 Dollars	I 0000 INOINE		ZDEPT INO	Department		Linear	3.230.00[D0	ollars
	ESC ESCALATION	0000 NONE		ZDEPT No	Department		Linear	2.032.01 Do	ollare
	Factors 2032.01 Dollars	I COOC INCINE		ZDEI I INO	Debartment		Lincai	2.002.01100	Jilars
Activity ID:		losure doc., Svs. 2	2. HF			Cost Risk	2 Schedule Ri	isk 3	
Line Item			Quantity Units BOE	Labor	Labor Hours La	bor Cost Materials/	Sub Contingency	Total Prime Burden Cos	st Total Cost
Line Hem	Description		Quantity Onlis BOL Type	Hours/Unit		Total Cost	& Escalation	Cost Buruen Cos	si Totai Cosi
4	Closure Documentation		1.00 each EE	5	5		500 0		71 1.718
SYS	Contingency And Escalation		1.00 ea EE	0	0	0	0 92		0 92
		Tot	al for Activity 1CAC71224:		5	148 1.5	500 92	1.740 7	71 1.810
Line Item 4 - C	Closure Documentation								
BOE	The original resources and skill qua	antities for th	he Liquids Systems in	Building 77	l were generate	ed by the Liquid	s team headed h	oy Mr. Ray Boyle apr	proximately
	two years ago. During the last year liquids has been modified to take ac								
	to the various systems. The results								
	presented herein.								
Resources	Cost Element		Skill		Department		Curve	Quantity	Units
Resources	750 STRAIGHT TIME BASE	E050 ENVIRO	NMENTAL ENGINEERS	K281S Buil	ding 771 Closure P	roject	Linear	5.00 Ho	
	Factors 5 Hours	1	Difficulty Factor	T INZO IO IDGII		101001	LIIIOGI	0.001110	Julio
	A5H SUBCONTRACTED SRVS	E130 OTHER		K281S Buil	dina 771 Closure P	roiect	Linear	1.500.00 Do	ollars
	Factors 20 Hours	75	Dollars per Hr	1	Difficulty Fac				
Line Item SYS	S - Contingency And Escalation								
BOE									
Resources	Cost Element		Skill		Department		Curve	Quantity	Units
Resources	CON CONTINGENCY	0000 NONE	SKIII	ZDEPT No			Linear	55.76 Do	
	Factors 55.7588 Dollars	I UUUU INUNE		L ZDEPI INO	Department		Linear	55./6ID0	JiidiS
	ESC ESCALATION	0000 NONE		ZDEPT No	Denartment		Linear	36.13 Do	ollars
	Factors 36.1320 Dollars	L OUGO INCINE		L ZULF I INO			Lineal	30.13100	wial 3
WBS No: 10		Incinerator Scrubb	per Rm 149						
Activity ID:						Cost Risk	1 Schedule Ri	isk 1	

WBS No: 1CAC24 Activity ID: 1CAC71241

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Baseline Devl 1CAC

		u Buoio 0. 1	Activity Filter *				Starts In FY *					
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	806	806	21.775	39.271	0	61.046	10.626	71.672
	Tot	v 1CAC712	241:		806	21.775	39.271	0	61.046	10.626	71.672	

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department		Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project		Linear	51.27	Hours
i	Factors	110 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Buildina 771 Closure Proiect		Linear	24.24	Hours
	Factors	52 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				T
	750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Buildina 771 Closure Proiect		Linear	15.38	Hours
	Factors	33 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				т
	750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Buildina 771 Closure Proiect		Linear	189.24	Hours
i	Factors	406 Hours	1	1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Buildina 771 Closure Proiect		Linear	3.73	Hours
ı	Factors	8 Hours	1	1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project		Linear	30.30	Hours
ı	Factors	65 Hours	1	1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project		Linear	12.58	Hours
ı	Factors	27 Hours	1	1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project		Linear	0.47	Hours
	Factors	1 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried		Linear	1.40	Hours
	Factors	3 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H			Linear	133.30	Hours
1	Factors	286 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers		Linear	279.66	Hours
1	Factors	600 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers		Linear	23.31	Hours
1	Factors	50 Hours		1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers		Linear	41.02	Hours
	Factors	88 Hours	1	1 Difficulty Factor		0.4661 5/22/00 togo Factor				
	A52	TENERA	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Proiect		Linear	12.829.40	Dollars
ĺ	Factors	367 Hours		75 Dollars per hr		1 Difficulty Factor		0.4661 5/22/00 too		
	A52	TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project		Linear	2.901.47	Dollars
1	Factors	83 Hours		75 Dollars per hr		1 Difficulty Factor		0.4661 5/22/00 too		
	A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	K281S	Building 771 Closure Proiect		Linear	5.208.67	Dollars
	Factors	149 Hours		75 Dollars per hr		1 Difficulty Factor		0.4661 5/22/00 too		
	A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project		Linear	6.795.74	Dollars
	Factors	162 Hours		90 Dollars per hr		1 Difficulty Factor		0.4661 5/22/00 too		
	A5H	SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project		Linear	5.243.63	Dollars
	Factors	150 Hours		75 Dollars per hr		1 Difficulty Factor		0.4661 5/22/00 too		I
	A5H	SUBCONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Building 771 Closure Project		Linear	6.292.35	Dollars
	Factors			75 Dollars per hr		1 Difficulty Factor		0.4661 5/22/00 too		
-	101071	Description: Tap 2 dra	un Svetoi	m 24 Incinarator Scrubbar			Coat Diele	A Cohodula Diele	-2	

Activity ID: 1CAC71242 Description: Tap & drain System 24, Incinerator Scrubber Cost Risk 4 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	1.421	1.421	29.948	7.700	0	37.647	14.422	52.069

WBS No: 1CAC24 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71242 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY SYS Contingency And Escalation 1.00 ea 1.570 1.570 1.570 Total for Activity 1CAC71242: 1.421 29.948 7.700 1.570 39.218 14.422 53.640 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Element Units Resources Department Curve STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 37.41 Hours Linear Hours Difficulty Factor T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 307 98 Hours 354 Hours Difficulty Factor STRAIGHT TIME BASE D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 151.94 Hours Difficulty Factor Factors 236 Hours 0.87 Heatcount Cuts T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 862.69 Hours 750 STRAIGHT TIME BASE Linear Factors 1340 Hours Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 6.96 Hours Linear Difficulty Factor Factors Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 53.94 Hours 62 Hours Difficulty Factor A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 7.699.50 Dollars Linear Factors 118 Hours 75 Dollars per Hr 0.87 Difficulty Factor Line Item SYS - Contingency And Escalation BOE Resources Cost Flement Skill Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 933.38 Dollars Factors 933.38 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 637 01 Dollars Linear 637.01 Dollars Factors Activity ID: 1CAC71243 Description: Remove proc. piping, Sys. 24, Incin. Scrubber 4 Schedule Risk BOELabor Labor Hours Labor Cost Materials/ Sub Total Prime Line Item Description **Ouantity** Units Contingency Burden Cost Total Cost Hours/Unit & Escalation TypeTotal Total Cost Cost 8 222 1.00 each EE 1.274 1.274 28.723 36.945 13.727 50.672 Contingency And Escalation 1 00 ea FF 2 407 2.407 SYS 0 2.407 Total for Activity 1CAC71243: 1.274 28.723 8.222 39.351 13.727 2.407 53.079 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. **Ouantity** Skill Units Resources Cost Element Department Curve 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 638.58 Hours Linear 734 Hours Difficulty Factor RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 248.82 Hours 750 STRAIGHT TIME BASE Linear 286 Difficulty Factor Factors Hours 0.87 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear 197.00 Hours Difficulty Factor Factors 306 Hours 0.74 Heatcount Cuts

Page 19 of 85 6/22/00 8:43:53 PM *OFFICIAL USE ONLY*

WBS No: 1CAC24 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71243 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 113.10 Hours Linear 130 Hours Difficulty Factor RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 751 OVERTIME BASE & PRE 43.50 Hours Linear Difficulty Factor 50 Hours 751 OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 33.48 Hours Difficulty Factor Factors 52 Hours 0.87 Heatcount Cuts MECHANICAL ENGINEERS 8.091.00 Dollars A57 LATA F070 K281S Building 771 Closure Project Linear Difficulty Factor Dollars per hr 0.87 124 Hours A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 130.50 Dollars 2 Hours 75 Dollars per hr 0.87 Difficulty Factor Factors Line Item SYS - Contingency And Escalation BOE Resources Cost Element Department CON CONTINGENCY 0000 NONE ZDEPT No Department 1.430.41 Dollars Linear Factors 1430.41 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 976 22 Dollars 976.222 Dollars Activity ID: 1CAC71244 Description: Finalize closure doc., Sys. 24, Incin. Scrubber Cost Risk 2 Schedule Risk Line Item BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Description **Ouantity** Hours/Unit Type Total Total Cost & Escalation Cost EE 1.500 71 Closure Documentation 1.00 each 148 0 1.648 1.718 Contingency And Escalation 1.00 ea FF SYS Λ 0 0 0 92 92 0 92 5 1.500 71 Total for Activity 1CAC71244: 148 92 1.740 1.810 Line Item 4 - Closure Documentation The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Element Units Resources Department Curve **Ouantity** 750 STRAIGHT TIME BASE ENVIRONMENTAL ENGINEERS K281S Building 771 Closure Project 5.00 Hours Linear 5 Hours Difficulty Factor A5H SUBCONTRACTED SRVS F130 OTHER ENGINEERS K281S Building 771 Closure Project 1.500.00 Dollars Linear Factors 20 Hours 75 Dollars per Hr Difficulty Factor Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 55 76 Dollars 55.7588 Dollars ESCALATION 0000 NONE ZDEPT No Department 36.13 Dollars Linear 36.1320 Dollars WBS No: 1CAC25 Sys 25 - HCI Scrubber Rm 180K Activity ID: 1CAC71251 Description: Plan/Eng prep to drain Sys. 25, HCI Scrubber Cost Risk 1 Schedule Risk BOE Labor Labor Hours Labor Cost Materials/ Sub Total Prime Line Item Description **Ouantity** Units Contingency Burden Cost Total Cost TypeHours/Unit Total Total Cost & Escalation Cost Planning & Engineering Prep to Drain 327 327 8.830 15.924 24.754 4.309 1.00 each 29.063 Total for Activity 1CAC71251: 327 8.830 15.924 24.754 4.309 29.063 Line Item 1 - Planning & Engineering Prep to Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for

liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access

Page 20 of 85 6/22/00 8:43:53 PM *OFFICIAL USE ONLY*

WBS No: 1CAC25 Activity ID: 1CAC71251

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect
WBS Filter
Activity Filter

Baseline Devl 1CAC

to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

	present	ed herein.												
Resources		Cost Element		Ski	u			Departi	nent		Curve	Ou	antity Uni	its
	750	STRAIGHT TIME BASE	E050	ENVIRONMEN [*]	TAL ENGINEERS	K281S	Buildin	a 771 Closu	re Proiect		Linear		20.79 Hours	5
r	Factors	110 Hours		1 Diffi	culty Factor	,	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CR	TICALITY) ENGINEER	K281S	Buildin	a 771 Closu	re Proiect		Linear		9.83 Hours	3
r	Factors	52 Hours		1 Diffi	culty Factor		0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	E120	SAFETY ENGIN	IEERS	K281S	Buildin	a 771 Closu	re Proiect		Linear		6.24 Hours	3
r	Factors	33 Hours		1 Diffi	culty Factor		0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	E130	OTHER ENGIN	EERS	K281S	Buildin	a 771 Closu	re Proiect		Linear		76.73 Hours	3
r	Factors	406 Hours		1 Diffi	culty Factor	,	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	M020	MANAGERS (G	RADE 69 - 72)	K281S	Buildin	a 771 Closu	re Proiect		Linear		1.51 Hours	3
r	Factors	8 Hours		1 Diffi	culty Factor	,	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	P090	INDUSTRIAL H	YGIENISTS	K281S	Buildin	a 771 Closu	re Proiect		Linear		12.28 Hours	3
r	Factors	65 Hours		1 Diffie	culty Factor	I	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	P150	TRAINERS		K281S	Buildin	a 771 Closu	re Proiect		Linear		5.10 Hours	3
r	Factors	27 Hours		1 Diffi	culty Factor	,	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	P170	OTHER ADMIN	ISTRATIVE & PROFE	K281S	Buildin	a 771 Closu	re Proiect		Linear		0.19 Hours	3
r	Factors	1 Hours		1 Diffi	culty Factor	,	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	S010	CHEMISTS		S100S	SSOC	Salaried			Linear		0.57 Hours	3
r	Factors	3 Hours	T	1 Diffi	culty Factor	I	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	T050	RADIATION CO	NTROL TECHNOLIGI	KC10H	771 Cc	omplex Stee	lworkers		Linear		54.05 Hours	3
r	Factors	286 Hours	T		culty Factor	I	0.189	5/22/00 1	togo Factor					
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDI	JC TECH / RISK RED	KC10H	771 Cc	omplex Stee	lworkers		Linear		113.40 Hours	3
r	Factors	600 Hours	T	1 Diffie	culty Factor	I	0.189		togo Factor					
	751 C	OVERTIME BASE & PRE.	T050	RADIATION CO	NTROL TECHNOLIGI	KC10H	771 Cc	omplex Stee	lworkers		Linear		9.45 Hours	3
r	Factors	50 Hours	T		culty Factor	I	0.189	5/22/00 1	togo Factor					
	751 C	OVERTIME BASE & PRE.	T060	D&D HAZ REDI	JC TECH / RISK RED	KC10H	771 Cc	omplex Stee	lworkers		Linear		16.63 Hours	3
r	Factors	88 Hours	T	1 Diffie	culty Factor	I	0.189	5/22/00 1	togo Factor					
	A52 T	TENERA	E070	MECHANICAL I	ENGINEERS	K281S	Buildin	a 771 Closu	re Proiect		Linear		5.202.23 Dolla	rs
r	Factors	367 Hours		75 Dolla	ars per hr	I	1	Difficulty	Factor		0.189 5/22/0	00 togo Factor	·	
	A52 T	TENERA	E130	OTHER ENGIN	EERS	K281S	Buildin	a 771 Closu	re Proiect		Linear		1.176.53 Dolla	rs
r	Factors	83 Hours		75 Dolla	ars per hr	,	1	Difficulty	Factor		0.189 5/22/0	00 togo Factor		
	A57 L	_ATA	P160	TECHNICAL W	RITERS AND EDITOR	K281S	Buildin	a 771 Closu	re Proiect		Linear		2.112.07 Dolla	rs
r	Factors	149 Hours		75 Dolla	ars per hr	,	1	Difficulty	Factor		0.189 5/22/0	00 togo Factor		
	A5H S	SUBCONTRACTED SRVS	E080	NUCLEAR (CR	TICALITY) ENGINEER	K281S	Buildin	a 771 Closu	re Proiect		Linear		2.755.62 Dolla	rs
r	Factors	162 Hours		90 Dolla	ars per hr	,	1	Difficulty	Factor		0.189 5/22/0	00 togo Factor		
	A5H S	SUBCONTRACTED SRVS	P070	COST ESTIMAT	TORS PLANNERS AN	K281S	Buildin	a 771 Closu	re Proiect		Linear		2.126.25 Dolla	rs
r	Factors	150 Hours		75 Dolla	ars per hr	,	1	Difficulty	Factor		0.189 5/22/0	00 togo Factor		
	A5H S	SUBCONTRACTED SRVS	P080	HEALTH PHYS	ICISTS	K281S	Buildin	a 771 Closu	re Proiect		Linear		2.551.50 Dolla	rs
	Factors	180 Hours		75 Dolla	ars per hr		1	Difficulty	Factor		0.189 5/22/0	00 togo Factor	•	
Activity ID: 1	ICAC7125	Description: Tap & dr	rain Systen	n 25, HCI Scrubb	er					Cost Risk	4 Schedule Ris	<i>k</i> 3		
Line Item		Description		Quan	tity Units BOE	Labor	L	abor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
Zane Tem		Zescription		guan	Type	Hours/U		Total	Total	Cost	& Escalation	Cost		20101 0001
2	Tan A	& Drain		1 .	I.00 each EE		341	341	7.194	1.850		9.044	3.511	12.555
_	1140	SC SC LYGUL		•	ctivity 1CAC71252:	'		341	7.194	1.850		9.044	3.511	12.555
l ine Item 2 - Ta	an & Drai	'n		10.01.101.71	, 10/10/120Z.		L	U T I	7.13-	1.000		0.011	0.0111	12.000

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources	Cost Flement	Skill	Department	Curve	Quantity	Units	

WBS No: Activity ID:	1CAC25 1CAC71252		ı			Closure P		WB	S Filter 1C	aseline Devl CAC			
		1			oot a.				ivity Filter *		St	arts In FY *	
	750 STRAIGHT TIME BASE	C120 D&D SKI					Complex Stee			Linear		8.99 Hour	S
	Factors 43 Hours	0.39		v Factor			359 5/22/00						
	750 STRAIGHT TIME BASE	T050 RADIATI			OLIGI					Linear		73.99 Hour	S
	Factors 354 Hours	0.39	Difficult				359 5/22/00						
	750 STRAIGHT TIME BASE			TECH / RISK	RED					Linear		36.50 Hour	S
	Factors 236 Hours	0.39	Difficulty	y Factor		0.5	359 5/22/00 Heatcou						
	750 STRAIGHT TIME BASE	T060 D&D HA	Z REDUC	TECH / RISK	RED	KC10H 771	Complex Stee	lworkers		Linear		207.25 Hour	s
	Factors 1340 Hours	0.39	Difficulty	v Factor		0.53 0.74	359 5/22/00 Heatcou						
	751 OVERTIME BASE & PRE.	C120 D&D SKI	LLED TRA	DEC			Complex Stee			Linear		1.67 Hours	
	· ·	0.39		v Factor			359 5/22/00			Linear		1.0/Inoui:	S
	Factors 8 Hours 751 OVERTIME BASE & PRE.					KC10H 771				Lincor		12.96 Hour	
					OLIGI					Linear		12.96IH0ur	5
	Factors 62 Hours	0.39	Difficulty				359 5/22/00			Ussess		1.849.66 Dolla	
	A5H SUBCONTRACTED SRVS	L E070 IMECHAN					dina 771 Closu			Linear	, (00 t F t		rs
A . // 1/ ID	Factors 118 Hours	75	Dollars			0.39	Difficulty	Factor	G . P. I		2/00 togo Facto	ors	
Activity ID:	1CAC71253 Description: Remove	proc. piping, Sys. 2	b, HCI Scru	ubber					Cost Risk	4 Schedule F	Risk 3	,	
Line Item	n Description		Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
3	PPR		1.00	each	FF	571	571	12.876	3.685	*		6.283	22.845
	11.1.13	Tot		itv 1CAC7125		071	571					6.283	22.845
Line Item 3 - F	PPR	100	ai ioi /iotiv	10/10/12			571	12.070	0.000		10.001	0.200	
	to the various systems. The results presented herein.	s of those ana		ve been ap	plied	to the rem	aining liq	uids system	ns and are r	reflected in	the new ba	aseline data	ì
Resources	Cost Element		Skill				Depart			Curve	0	uantity Un	its
	750 STRAIGHT TIME BASE	C120 D&D SKI	LLED TRA	DES		KC10H 771	Complex Stee	lworkers		Linear		286.26 Hour	S
	Factors 734 Hours	0.39		v Factor									
	750 STRAIGHT TIME BASE	T050 RADIATI			OLIGI	KC10H 771	Complex Stee	lworkers		Linear		111.54 Hour	s
	Factors 286 Hours	0.39	Difficulty										
	750 STRAIGHT TIME BASE			TECH / RISK	RED	KC10H 771	Complex Stee	lworkers		Linear		88.31 Hour	s
	Factors 306 Hours	0.39	Difficulty	y Factor		0.74	1 Heatcou	int Cute					
	751 OVERTIME BASE & PRE.	C120 D&D SKI	LLED TRA	DES			Complex Stee			Linear		50.70 Hours	9
	Factors 130 Hours	0.39		v Factor		101011 1111	COMBION CICC	THO I NO I O		Linoui		00.7 0 1 1001	
	751 OVERTIME BASE & PRE.	T050 RADIATI			OLIGI	KC10H 771	Complex Stee	lworkers		Linear		19.50 Hour	9
	Factors 50 Hours	0.39	Difficulty		OLIOI	101011 1771	COMBION CICC	THO I NO I O		Linoui		10.00 1100	
	751 OVERTIME BASE & PRE.			TECH / RISK	RFD	KC10H 771	Complex Stee	lworkers		Linear		15.01 Hours	s
	Factors 52 Hours	0.39	Difficulty			•			<u>'</u>	=1110331	*	10101111001	
	A57 LATA	E070 MECHAN	NICAL ENG	SINEERS		0.74 K281S Buil	Heatcou ding 771 Closu			Linear		3.627.00 Dolla	ırs
	Factors 124 Hours	75	Dollars			0.39							
	A5H SUBCONTRACTED SRVS	E130 OTHER				K281S Buil	dina 771 Closu	re Proiect		Linear		58.50 Dolla	ırs
	Factors 2 Hours	75	Dollars			0.39			·		·		
Activity ID:						0.00			Cost Risk	2 Schedule F	Risk 3		
					DOE	TI	T -1 TT	1 -1		1	Total Prime	p	Turke
Line Item	•		Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	& Escalation	Cost	Burden Cost	Total Cost
4	Closure Documentation		1.00	each	EE	5	5		1.500		1.648	72	1.720
Lima Ham 4	Closura Documentation	Tot	al for Activ	ity 1CAC7125	54:		5	148	1.500	0	1.648	72	1.720

Line Item 4 - Closure Documentation

BOE

Page 22 of 85 6/22/00 8:43:54 PM *OFFICIAL USE ONLY*

WBS No: 1CAC25 1CAC71254 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Activity Filter

1CAC

Baseline Devl

Starts In FY

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es	Cost Element		Skill		Department	Curve	Quantity U	Inits
	750 STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00 Hou	urs
	Factors 5 Hours		1 Difficulty Factor					
	A5H SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00 Dol	lars

Fact	tors 20 Hours /5	Dollars p	er Hr		11	Difficulty	Factor					
WBS No: 1CAC2	27 Title: Sys 27 - 2.0M KOH											
Activity ID: 1CA	C71271 Description: Plan/Eng prep to drain Sys. 2	27, 2.0M KC	Н					Cost Risk	1 Schedule R	risk 1		
Line Item	Description	Quantity	Units B	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
			7	Гуре	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	766	766	20.710	37.350	0	58.060	10.106	68.166
	Tot	al for Activit	v 1CAC71271:	:		766	20.710	37.350	0	58.060	10.106	68.166

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

s .		Cost Element		Skill		Department	Curve	Ouantity Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	48.76 Hours
d	Factors	110 Hours	ı	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	23.05 Hours
	Factors	52 Hours	1	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	14.63 Hours
4	Factors	33 Hours		1 Difficulty Factor		0.4433 5/22/00 togo Factor	1	
L	750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	179.98 Hours
r	Factors	406 Hours		1 Difficulty Factor		0.4433 5/22/00 togo Factor	1	
L	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	3.55 Hours
ŕ	Factors	8 Hours		1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	28.81 Hours
ď	Factors	65 Hours		1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	11.97 Hours
ď	Factors	27 Hours		1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	0.44 Hours
ŕ	Factors	1 Hours	ı	1 Difficulty Factor		0.4433 5/22/00 togo Factor	1	
L	750	STRAIGHT TIME BASE	S010		S100S	SSOC Salaried	Linear	1.33 Hours
ď	Factors	3 Hours	1	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	·	Linear	126.78 Hours
ď	Factors	286 Hours	1	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	*	Linear	265.98 Hours
ď	Factors	600 Hours	ı	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	*	Linear	22.17 Hours
ď	Factors	50 Hours	ı	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	39.01 Hours
ď	Factors	88 Hours	ı	1 Difficulty Factor		0.4433 5/22/00 togo Factor		
L	A52	TENERA	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	12.201.83 Dollars
ď	Factors		ı	75 Dollars per hr		1 Difficulty Factor	0.4433 5/22/00 togo	
L	A52	TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	2.759.54 Dollars
نہ	Factors	83 Hours		75 Dollars per hr		1 Difficulty Factor	0.4433 5/22/00 togo	Factor

Page 23 of 85 6/22/00 8:43:54 PM OFFICIAL USE ONLY WBS No: 1CAC27 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71271 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY A57 LATA P160 TECHNICAL WRITERS AND EDITOR | K281S | Building 771 Closure Project 4.953.88 Dollars Linear 149 Hours Dollars per hr Difficulty Factor 0.4433 5/22/00 togo Factor **Factors** NUCLEAR (CRITICALITY) ENGINEER A5H SUBCONTRACTED SRVS E080 K281S Building 771 Closure Project 6.463.31 Dollars Linear Difficulty Factor Dollars per hr 0.4433 5/22/00 togo Factor 162 Hours A5H SUBCONTRACTED SRVS COST ESTIMATORS PLANNERS AN Building 771 Closure Project Linear 150 Hours Dollars per hr Difficulty Factor 0.4433 5/22/00 togo Factor Factors A5H SUBCONTRACTED SRVS P080 HEALTH PHYSICISTS K281S Building 771 Closure Project Linear 5.984.55 Dollars Factors 180 Hours 75 Dollars per hr Difficulty Factor 0.4433 5/22/00 togo Factor Activity ID: 1CAC71272 Description: Tap & drain System 27, 2.0M KOH Cost Risk 4 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Quantity** Type Hours/Unit **Total** Cost & Escalation Cost FF 23.752 29.858 11.329 Tap & Drain 1.127 1.127 6.107 1.00 each 41.188 SYS Contingency And Escalation 1.00 ea EE 2.243 2.243 0 Λ 2.243 Total for Activity 1CAC71272: 1.127 23.752 6.107 2.243 32.101 11.329 43.431 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Element Curve Resources Skill **Department** Units KC10H 771 Complex Steelworkers STRAIGHT TIME BASE C120 D&D SKILLED TRADES Linear 29.67 Hours Difficulty Factor 43 Hours 0.69 STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 244.26 Hours Linear 354 Hours Difficulty Factor Factors STRAIGHT TIME BASE D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 750 T060 Linear 684.20 Hours Factors 1340 Hours Difficulty Factor Heatcount Cuts 0.74 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear 120.50 Hours Factors 236 Difficulty Factor Hours Heatcount Cuts OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 5.52 Hours Hours 0.69 Difficulty Factor Factors 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 42.78 Hours Linear Difficulty Factor 62 Hours Factors A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 6.106.50 Dollars Linear 0.69 Difficulty Factor 118 Hours Dollars per Hr Factors Line Item SYS - Contingency And Escalation BOE Cost Element Skill Department Units Resources Curve Quantity CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 1.376.97 Dollars Factors 1376.97 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 866.08 Dollars Linear 866.082 Dollars Activity ID: 1CAC71273 Description: Remove proc. piping, Svs. 27, 2.0M KOH Cost Risk 4 Schedule Risk 3 Line Item Description **Ouantity** Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Hours/Unit Total Total Cost & Escalation TypeCost FF 1 011 22 781 6 521 29.301 10 866 1.00 each 1 011 40.167 SYS Contingency And Escalation 1.00 ea FF 0 0 2.187 2.187 0 2.187 1.011 22,781 Total for Activity 1CAC71273: 6,521 2.187 31.489 10,866 42,355 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately

BOE

Page 24 of 85 6/22/00 8:43:55 PM OFFICIAL USE ONLY WBS No: 1CAC27 Activity ID: 1CAC71273

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect
WBS Filter
Activity Filter

Filter 1CAC

Baseline Devl

two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	506.46	Hours
-	Factors	734 Hours		0.69 Difficulty Factor					
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	197.34	Hours
r	Factors	286 Hours		0.69 Difficulty Factor					
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	156.24	Hours
	Factors	306 Hours		0.69 Difficulty Factor					
				1		0.74 Heatcount Cuts			
L	751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	89.70	Hours
	Factors	130 Hours		0.69 Difficulty Factor					
L	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	34.50	Hours
	Factors	50 Hours		0.69 Difficulty Factor					
Ĺ	751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	26.55	Hours
	Factors	52 Hours		0.69 Difficulty Factor					
г				1		0.74 Heatcount Cuts			
L	A57	LATA	E070	MECHANICAL ENGINEERS	K281S	Buildina 771 Closure Proiect	Linear	6.417.00	Dollars
	Factors	124 Hours		75 Dollars per hr		0.69 Difficulty Factor			
Ĺ	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Proiect	Linear	103.50	Dollars
	Factors	2 Hours		75 Dollars per hr		0.69 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	1,342.87	Dollars
	Factors	1342.87 Dollars							
	FSC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	844 63	Dollars

Factors 844.631 Dollars

Activity ID: 1CAC71274

Description: Finalize closure doc., Sys. 27, 2.0M KOH

Cost Risk 2 Schedule Risk

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4	Closure Documentation	1.00	each	EE	5	5	148	1,500	0	1.648	71	1.718
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	92	92	0	92
	Tot	al for Activit	ty 1CAC712	74:		5	148	1.500	92	1.740	71	1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Ouantity l	Units
	750 STRAIGHT TIME BASE		E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00 Ho	ours
	Factors	5 Hours		1 Difficulty Factor					
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00 Do	llars
	Factors	20 Hours		75 Dollars per Hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

es		Cost Element	Skill			Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	55.76	Dollars
	Factors	55.7588 Dollars							

WBS No: 1CAC27 *Activity ID:* 1CAC71274

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Activity Filter

Baseline Devl 1CAC

ESC ESCALATION 0000 NONE ZDEPT No Department Linear 36.13 Dollars

Factors 36.1320 Dollars

WBS No: 1CAC2	28 Title: Sys 28 - 3M KOH											
Activity ID: 1CAC71281 Description: Plan/Eng prep to drain Svs. 28, 3M KOH Cost Risk 1 Schedule Risk 1												
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.016	1.016	27.465	49.534	0	76.999	13.403	90.401
	Tot	al for Activit	ty 1CAC712	81:		1.016	27.465	49.534	0	76.999	13.403	90.401

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es	Cost Element	Skill	Department	Curve	Ouantity Units
L	750 STRAIGHT TIME BASE	E050 ENVIRONMENTAL ENGINEERS	K281S Building 771 Closure Project	Linear	64.67 Hours
į.	Factors 110 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Project	Linear	30.57 Hours
d	Factors 52 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
	750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	K281S Building 771 Closure Project	Linear	19.40 Hours
į.	Factors 33 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	238.69 Hours
d	Factors 406 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
	750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	K281S Building 771 Closure Project	Linear	4.70 Hours
d	Factors 8 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	K281S Building 771 Closure Project	Linear	38.21 Hours
ď	Factors 65 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
	750 STRAIGHT TIME BASE	P150 TRAINERS	K281S Building 771 Closure Project	Linear	15.87 Hours
d	Factors 27 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
	750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	K281S Building 771 Closure Project	Linear	0.59 Hours
4	Factors 1 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	750 STRAIGHT TIME BASE	S010 CHEMISTS	S100S SSOC Salaried	Linear	1.76 Hours
4	Factors 3 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	168.14 Hours
ď	Factors 286 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	352.74 Hours
ď	Factors 600 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	29.39 Hours
ď	Factors 50 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	51.74 Hours
ď	Factors 88 Hours	1 Difficulty Factor	0.5879 5/22/00 togo Factor		
L	A52 TENERA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	16.181.95 Dollars
ď	Factors 367 Hours	75 Dollars per hr	1 Difficulty Factor	0.5879 5/22/00 toao F	
L	A52 TENERA	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	3.659.68 Dollars
ď	Factors 83 Hours	75 Dollars per hr	1 Difficulty Factor	0.5879 5/22/00 toao F	
L	A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	K281S Building 771 Closure Project	Linear	6.569.78 Dollars
ď	Factors 149 Hours	75 Dollars per hr	1 Difficulty Factor	0.5879 5/22/00 toao F	
L	A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Project	Linear	8.571.58 Dollars
į.	Factors 162 Hours	90 Dollars per hr	1 Difficulty Factor	0.5879 5/22/00 togo F	
L	A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN	K281S Building 771 Closure Project	Linear	6.613.88 Dollars
ŕ	Factors 150 Hours	75 Dollars per hr	1 Difficulty Factor	0.5879 5/22/00 toao F	
L	A5H SUBCONTRACTED SRVS	P080 HEALTH PHYSICISTS	K281S Building 771 Closure Project	Linear	7.936.65 Dollars
	Factors 180 Hours	75 Dollars per hr	1 Difficulty Factor	0.5879 5/22/00 togo F	actor

Page 26 of 85 6/22/00 8:43:56 PM *OFFICIAL USE ONLY*

WBS No: 1CAC28 Activity ID: 1CAC71282

Activity ID: 1CAC71282

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WRS Filter 1CAC

Cost Risk

WBS Filter 1CAC
Activity Filter *

4 Schedule Risk

Starts In FY

3

Line Item	Description		Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2	Tap & Drain		1.00) each	FF	768	768	16.179	4.160	0	20.338	7.717	28.055
SYS	Contingency And Escalation		1.00		EE	0	0	0	0	1.528		0	1.528
		Tota	al for Activ	ity 1CAC712	82:		768	16.179	4.160			7.717	
Line Item 2 - 1	Гар & Drain												
вое	The original resources and skill quatwo years ago. During the last year liquids has been modified to take act to the various systems. The results presented herein.	r, a detailed a dvantage of the	nalysis actual	of actual	l cost ompari	s and times	s by labor wasion analy:	was conduct sis to dete	ed upon com	pleted syst driving fac	ems. The categories	original ba difficulty	seline for of access
Resources	Cost Element		Skill				Departs	ment		Curve	0	uantity U	nits
	750 STRAIGHT TIME BASE	C120 D&D SKI	LLED TRA	ADES		KC10H 771	Complex Stee	lworkers		Linear		20.21 Hou	
	Factors 43 Hours	0.47	Difficult	v Factor									
	750 STRAIGHT TIME BASE	T050 RADIATI	ON CONT	ROL TECHN	IOLIGI	KC10H 771	Complex Stee	lworkers		Linear		166.38 Hou	rs
	Factors 354 Hours	0.47	Difficult	v Factor		, ,							
	750 STRAIGHT TIME BASE	T060 D&D HAZ	REDUC	TECH / RISK	RED	KC10H 771	Complex Stee	lworkers		Linear		466.05 Hou	rs
	Factors 1340 Hours	0.47	Difficult	y Factor									
						0.7							
	750 STRAIGHT TIME BASE	T060 D&D HAZ			RED	KC10H 771	Complex Stee	lworkers		Linear		82.08 Hou	rs
	Factors 236 Hours	0.47	Difficult	y Factor				_					
		T I				0.7							
	751 OVERTIME BASE & PRE.	C120 D&D SKI				KC10H 771	Complex Stee	lworkers		Linear		3.76 Hou	rs
	Factors 8 Hours	0.47		v Factor			0 1 0						
	751 OVERTIME BASE & PRE.				IOLIGI	KC10H 1771	Complex Stee	iworkers		Linear		29.14 Hou	rs
	Factors 62 Hours	0.47 F070 MECHAN		v Factor		KOO4C Duil	-li 774 Ol	Desired		Linner		4.159.50 Dolla	
	A5H SUBCONTRACTED SRVS			GINEERS			dina 771 Closu			Linear		4.159.50ID0II	ars
	Factors 118 Hours	75	Dollars	per Hr		0.4	7 Difficulty	Factor					

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element	Skill			Department	Curve		Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	937.94	Dollars
	Factors	937.937 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	589.94	Dollars

Factors 589.94 Dollars

Activity ID: 1CAC71283 Description: Remove proc. piping, Sys. 28, 3M KOH

Description: Tap & drain System 28, 3M KOH

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
3	PPR	1.00	each	EE	689	689	15.517	4.442	0	19.959	7.402	27.360
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1.490	1.490	0	1.490
	Tot	Total for Activity 1CAC71283:							1.490	21.449	7.402	28.850

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

ces		Cost Element		Skill		Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	C120 D&	&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	344.98	Hours
	Factors	734 Hours	_	0.47 Difficulty Factor					

Cost Risk

4 Schedule Risk

BS No: tivity ID:	1CAC28 1CAC71283			Closure Project and Basis of Estimate	Proiect WBS Filter	Baseline Devl 1CAC	
	750 STRAIGHT TIME BASE	TOFO DADIATI	ON CONTROL TECHNICI ICI	KC10H 771 Complex Steelworkers	Activity Filter	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Starts In FY * 134.42 Hours
	750 STRAIGHT TIME BASE Factors 286 Hours	1 1050 IRADIATIO 0.47	Difficulty Factor	KC10H //1 Comblex Steelworkers		Linear	134.42 Hours
	750 STRAIGHT TIME BASE			KC10H 771 Complex Steelworkers		Linear	106.43 Hours
	Factors 306 Hours	0.47	Difficulty Factor	THO TOTAL TOTAL CONTINUES		Lindai	TOO. TON TOWN
				0.74 Heatcount Cuts			
	751 OVERTIME BASE & PRE.	C120 D&D SKII	LLED TRADES	KC10H 771 Complex Steelworkers		Linear	61.10 Hours
	Factors 130 Hours	0.47	Difficulty Factor	T T			
	751 OVERTIME BASE & PRE.			KC10H 771 Complex Steelworkers		Linear	23.50 Hours
	Factors 50 Hours	0.47 T060 D&D HAZ	Difficulty Factor	1/04011 774.0 1 0: 1 1			40.00
	751 OVERTIME BASE & PRE. Factors 52 Hours	1 1060 ID&D HAZ 0.47	Difficulty Factor	KC10H 771 Complex Steelworkers		Linear	18.09 Hours
	ractors 32 Hours	0.47	Difficulty Factor	0.74 Heatcount Cuts			
	A57 LATA	E070 MECHAN	IICAL ENGINEERS	K281S Building 771 Closure Project	*t	Linear	4.371.00 Dollars
	Factors 124 Hours	75	Dollars per hr	0.47 Difficulty Factor	<i>A</i>	Linoui	1.07 1.0010011010
	A5H SUBCONTRACTED SRVS		ENGINEERS	K281S Building 771 Closure Project	ot .	Linear	70.50 Dollars
	Factors 2 Hours	75	Dollars per hr	0.47 Difficulty Factor			
ne Item SYS	S - Contingency And Escalation						
BOE							
Resources	Cost Element		Skill	Department		Curve	Ouantity Units
	CON CONTINGENCY	0000 NONE		ZDEPT No Department		Linear	914.71 Dollars
	Factors 914,706 Dollars						
	ESC ESCALATION	0000 NONE		ZDEPT No Department		Linear	575.33 Dollars
	Factors 575.328 Dollars						
ivity ID:	1CAC71284 Description: Finalize	closure doc., Sys. 28	3, 3M KOH		Cost Risk	2 Schedule Risk	3
Line Item	Description		Quantity Units BOE	Labor Labor Hours Labor	Cost Materials/	Sub Contingency Total I	Prime Burden Cost Total
Line Hem	Description		Quantity Cities BOB	Labor Labor 1	Josi Muchus, L	Sub Comingency Total I	Time Buraen Cost Total
Line Hem	•		Type	Hours/Unit Total Total	ıl Cost	& Escalation Co	st
	Closure Documentation		Type 1.00 each EE	Hours/Unit Total Total 5	<i>ll Cost</i> 148 1.5	& Escalation Co	1.648 71
	•		1.00 each EE 1.00 ea EE	Hours/Unit Total Total Total	148 1.5 0	& Escalation Co 500 0 0 92	1.648 71 92 0
S	Closure Documentation Contingency And Escalation	Tota	Type 1.00 each EE	Hours/Unit Total Total 5	148 1.5 0	& Escalation Co	1.648 71
'S e Item 4 - C	Closure Documentation Contingency And Escalation Closure Documentation		1.00 each EE 1.00 lea EE al for Activity 1CAC71284:	Hours/Unit Total Total Total	148 1.5 0 148 1.5	& Escalation Co 500 0 0 92 500 92	1.648 71 92 0 1.740 71
'S ne Item 4 - C	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quitwo years ago. During the last years	uantities for thar, a detailed a	1.00 each EE 1.00 ea EE al for Activity 1CAC71284: Type 1.00 ea EE al for Activity 3 CAC71284: The Liquids Systems in Equal to the second se	Hours/Unit Total Total 5 5 5 0 0 5 Building 771 were generated kes and times by labor was cor	148 1.5 0 148 1.5 0 148 1.6 0 148 1.6 0 148 1.6	& Escalation Co 0 0 92 500 92 s team headed by Mr.	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline
'S ne Item 4 - C	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a	uantities for thar, a detailed and advantage of the	1.00 each EE 1.00 ea EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Equal cost exactual charge comparing a c	Hours/Unit Total Total 5 5 5 0 0 5 Suilding 771 were generated kes and times by labor was coreson, regression analysis to	d	& Escalation Co	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of acce
'S e Item 4 - C	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quality two years ago. During the last year liquids has been modified to take a to the various systems. The result	uantities for thar, a detailed and advantage of the	1.00 each EE 1.00 ea EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Equal cost exactual charge comparing a c	Hours/Unit Total Total 5 5 5 0 0 5 Suilding 771 were generated kes and times by labor was coreson, regression analysis to	d	& Escalation Co	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of acce
'S e Item 4 - C	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a	uantities for thar, a detailed and advantage of the	1.00 each EE 1.00 ea EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Equal cost exactual charge comparing a c	Hours/Unit Total Total 5 5 5 0 0 5 Suilding 771 were generated kes and times by labor was coreson, regression analysis to	d	& Escalation Co	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of acce
S e Item 4 - C BOE	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a to the various systems. The result presented herein. Cost Element	uantities for thar, a detailed a advantage of the s of those anal	1.00 each EE 1.00 each EE 1.00 each EE al for Activity 1CAC71284: The Liquids Systems in Equalysis of actual costs actual charge comparity see have been applied. Skill	Hours/Unit Total Total 5 5 5 0 0 5 Building 771 were generated kes and times by labor was coreson, regression analysis to the remaining liquids synchronic to the remaining liquids synchronic to the remaining liquids synchronic transfer of the r	148 1.5 0 148 1.5 by the Liquids aducted upon a determine corrected and are	& Escalation Co	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accesses baseline data Ouantity Units
e Item 4 - C	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a to the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE	uantities for thar, a detailed a advantage of the s of those anal	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Equalysis of actual costs actual charge comparity. Skill NMENTAL ENGINEERS	Hours/Unit Total Total 5 5 5 0 0 5 Building 771 were generated kes and times by labor was conson, regression analysis to to the remaining liquids sy	148 1.5 0 148 1.5 by the Liquids aducted upon a determine corrected and are	& Escalation Co	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data
S e Item 4 - C BOE	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a to the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours	eantities for the car, a detailed a advantage of the cas of those anal	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Expression of actual costs actual charge comparings have been applied Skill NMENTAL ENGINEERS Difficulty Factor	Hours/Unit Total Total 5 5 0 0 5 Suilding 771 were generated kes and times by labor was coreson, regression analysis to the remaining liquids synthesis to the remaining liquids synthesis by the second state of the remaining liquids by the second	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units 5.00 Hours
'S e Item 4 - C BOE	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a to the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS	eantities for the car, a detailed a advantage of the car of those anal	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurally in a cost and actual cost a cactual charge comparings have been applied. Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS	Hours/Unit Total Total 5 5 5 0 0 0 5 Suilding 771 were generated keeps and times by labor was coreson, regression analysis to the remaining liquids synthematical by the second	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accesses baseline data Ouantity Units
e Item 4 - C BOE Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quality two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours	eantities for the car, a detailed a advantage of the cas of those anal	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Expression of actual costs actual charge comparings have been applied Skill NMENTAL ENGINEERS Difficulty Factor	Hours/Unit Total Total 5 5 0 0 5 Suilding 771 were generated kes and times by labor was coreson, regression analysis to the remaining liquids synthesis to the remaining liquids synthesis by the second state of the remaining liquids by the second	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units 5.00 Hours
e Item 4 - C BOE Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take a to the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS	eantities for the car, a detailed a advantage of the car of those anal	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurally in a cost and actual cost a cactual charge comparings have been applied. Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS	Hours/Unit Total Total 5 5 5 0 0 0 5 Suilding 771 were generated keeps and times by labor was coreson, regression analysis to the remaining liquids synthematical by the second	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units 5.00 Hours
e Item 4 - C BOE Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quotient the various systems. The result presented herein. Cost Element T50 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours Factors 1 Formula 1 Continuency And Escalation	eantities for the car, a detailed a advantage of the car of those anal	1.00 each EE 1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurallysis of actual costs actual charge comparity see have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr	Hours/Unit Total Total 5 5 5 0 0 0 5 Suilding 771 were generated keeps and times by labor was coreson, regression analysis to the remaining liquids synthematical by the second	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of acce we baseline data Ouantity Units 5.00 Hours 1.500.00 Dollars
S e Item 4 - C BOE Resources e Item SYS	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quality two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 - Contingency And Escalation	eantities for the ar, a detailed a advantage of the as of those anal	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurally in a cost and actual cost a cactual charge comparings have been applied. Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS	Hours/Unit Total Total 5 5 5 0 0 0 5 Building 771 were generated kes and times by labor was conson, regression analysis to to the remaining liquids synthematical to the remaining liquids synthematical Example 1 K281S Building 771 Closure Project K281S Building 771 Closure Project Department Department Department	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units 5.00 Hours
S e Item 4 - C BOE Resources e Item SYS	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quality two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 - Contingency And Escalation Cost Element CON CONTINGENCY	eantities for the car, a detailed a advantage of the car of those anal	1.00 each EE 1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurallysis of actual costs actual charge comparity see have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr	Hours/Unit Total Total 5	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of acce we baseline data Ouantity Units 5.00 Hours 1.500.00 Dollars
Se Item 4 - C BOE Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element T50 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours Factors 20 Hours Factors 5-Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars	E050 ENVIRON 1 E130 OTHER E 75	1.00 each EE 1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurallysis of actual costs actual charge comparity see have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr	Hours/Unit Total Total 5	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units
Se Item 4 - C BOE Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill quality two years ago. During the last year liquids has been modified to take at the various systems. The resulty presented herein. Cost Element T50 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 - Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars ESC ESCALATION	eantities for the ar, a detailed a advantage of the as of those anal	1.00 each EE 1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurallysis of actual costs actual charge comparity see have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr	Hours/Unit Total Total 5 5 5 0 0 0 5 Building 771 were generated kes and times by labor was conson, regression analysis to to the remaining liquids synthematical to the remaining liquids synthematical Example 1 K281S Building 771 Closure Project K281S Building 771 Closure Project Department Department Department	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units 5.00 Hours
e Item 4 - C BOE Resources e Item SYS BOE Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element T50 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 - Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars ESC ESCALATION Factors 36.1320 Dollars	eantities for the r, a detailed a devantage of the sof those analogous for the sof	1.00 each EE 1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figurallysis of actual costs actual charge comparity see have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr	Hours/Unit Total Total 5	d Cost 148 1.5 0 148 1.5 ov the Liquid aducted upon of determine constems and are	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear Curve Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of accelew baseline data Ouantity Units
re Item 4 - C BOE Resources BOE Resources Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill on two years ago. During the last yealiquids has been modified to take ato the various systems. The result presented herein. Cost Element T50 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 - Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars ESC ESCALATION Factors 36.1320 Dollars CAC29 Title: Sys 29	E050 ENVIRON 1 E130 OTHER E 75 0000 NONE - 6M KOH	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Equal costs actual charge comparity ses have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr	Hours/Unit Total Total 5	148 1.5 0 148 1.	& Escalation Co 0 0 92 500 92 s team headed by Mr. completed systems. st driving factors, e reflected in the r Curve Linear Linear Linear Linear	1.648 71 92 0 1.740 71 Ray Boyle approximate The original baseline and difficulty of access we baseline data Ouantity Units 5.00 Hours Ouantity Units 55.76 Dollars 36.13 Dollars
Resources Resources Resources Resources	Closure Documentation Contingency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars ESC ESCALATION Factors 36.1320 Dollars EAC29 Title: Sys 29 1CAC71291 Description: Plan/En	E050 ENVIRON 1 E130 OTHER E 75 0000 NONE - 6M KOH	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figure 1 costs and second comparity of the second comparity of	Hours/Unit Total Total 5	148 1.5 0 148 1.	& Escalation Co O	1.648
re Item 4 - C BOE Resources BOE Resources Resources	Closure Documentation Continuency And Escalation Closure Documentation The original resources and skill on two years ago. During the last yealiquids has been modified to take ato the various systems. The result presented herein. Cost Element T50 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 - Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars ESC ESCALATION Factors 36.1320 Dollars CAC29 Title: Sys 29	E050 ENVIRON 1 E130 OTHER E 75 0000 NONE - 6M KOH	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figural costs actual charge comparity ses have been applied Skill NMENTAL ENGINEERS Difficulty Factor ENGINEERS Dollars per Hr Skill 29. 6M KOH Quantity Units BOE	Hours/Unit Total Total 5	148 1.5 0 148 1.	& Escalation Co O	1.648
Resources Resources Resources Resources	Closure Documentation Contingency And Escalation Closure Documentation The original resources and skill question two years ago. During the last year liquids has been modified to take at the various systems. The result presented herein. Cost Element 750 STRAIGHT TIME BASE Factors 5 Hours A5H SUBCONTRACTED SRVS Factors 20 Hours 6 Contingency And Escalation Cost Element CON CONTINGENCY Factors 55.7588 Dollars ESC ESCALATION Factors 36.1320 Dollars EAC29 Title: Sys 29 1CAC71291 Description: Plan/En	E050 ENVIRON 1 E130 OTHER E 75 0000 NONE - 6M KOH	1.00 each EE 1.00 each EE 1.00 ea EE al for Activity 1CAC71284: The Liquids Systems in Figure 1 costs and second comparity of the second comparity of	Hours/Unit Total Total 5	148 1.5 0 148 1.	& Escalation Co & Escalation Co & Solution Co & Solution Co & Solution Co & Escalation Co & Co Co Co Co Co Co Co Co Co Co	1.648

WBS No: 1CAC29 1CAC71291 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71291:

Proiect WBS Filter Baseline Devl 1CAC

Activity Filter 8.830 15.924 29.063

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

327

Resources

es		Cost Element		Skill			Department	Ci	urve	Ouantity	Units
Į	750 STRAI	GHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Buildina 7	771 Closure Proiect	Lir	near	20.79	Hours
r	Factors 110	Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Buildina 7	771 Closure Proiect	Lir	near	9.83	Hours
r	Factors 52	Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Buildina 7	771 Closure Proiect	Lir	near	6.24	Hours
ı	Factors 33	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	E130	OTHER ENGINEERS	K281S	Buildina 7	771 Closure Proiect	Lir	near	76.73	Hours
ı	Factors 406	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Buildina 7	771 Closure Proiect	Lir	near	1.51	Hours
ı	Factors 8	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Buildina 7	771 Closure Proiect	Lir	near	12.28	Hours
ı	Factors 65	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	P150	TRAINERS	K281S	Buildina 7	771 Closure Proiect	Lir	near	5.10	Hours
ı	Factors 27	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Buildina 7	771 Closure Proiect	Lir	near	0.19	Hours
ı	Factors 1	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	S010	CHEMISTS	S100S	SSOC Sa	alaried	Lir	near	0.57	Hours
ı	Factors 3	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	plex Steelworkers	Lir	near	54.05	Hours
ı	Factors 286	Hours	1	1 Difficulty Factor		0.189	5/22/00 togo Factor				
Į	750 STRAI	GHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	plex Steelworkers	Lir	near	113.40	Hours
ī	Factors 600	Hours		1 Difficulty Factor			5/22/00 togo Factor				
Į	751 OVER	TIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H		plex Steelworkers	Lir	near	9.45	Hours
ſ	Factors 50	Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor				
ļ	751 OVER	TIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	plex Steelworkers	Lir	near	16.63	Hours
ſ	Factors 88	Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor				
ļ	A52 TENE	RA	E070	MECHANICAL ENGINEERS	K281S	Buildina 7	771 Closure Proiect		near	5.202.23	Dollars
ſ	Factors 367	Hours	1	75 Dollars per hr		_1	Difficulty Factor	0.189	5/22/00 togo Fa		
ļ	A52 TENE		E130	OTHER ENGINEERS	K281S	Buildina 7	771 Closure Proiect	Lir	near	1.176.53	Dollars
ſ	Factors 83	Hours	1	75 Dollars per hr		_1	Difficulty Factor	0.189	5/22/00 togo Fa		
ļ	A57 LATA		P160	TECHNICAL WRITERS AND EDITOR	K281S	Buildina 7	·		near	2.112.07	Dollars
ſ	Factors 149			75 Dollars per hr		1	Difficulty Factor	0.189	5/22/00 togo Fa		
Į	A5H SUBC	ONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Buildina 7	771 Closure Proiect	Lir	near	2.755.62	Dollars
ſ	Factors 162	110410		90 Dollars per hr		1	Difficulty Factor	0.189	5/22/00 togo Fa		
Į	A5H SUBC	ONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Buildina 7	771 Closure Proiect	Lir	near	2.126.25	Dollars
ı	Factors 150		I	75 Dollars per hr		1	Difficulty Factor	0.189	5/22/00 togo Fa		
Į		ONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Buildina 7	771 Closure Proiect		near	2.551.50	Dollars
	Factors 180			75 Dollars per hr		1	Difficulty Factor		5/22/00 togo Fa	actor	
	04074000	5 T 0 l		00 0141/011			C PLI	4 6 1	I I DI I		

Activity ID: 1CAC71292 Description: Tap & drain System 29, 6M KOH

Materials/ Sub Total Prime Contingency Burden Cost Cost & Escalation Cost

3

4 Schedule Risk

BOE Line Item Units Labor Labor Hours Labor Cost Total Cost Description Quantity TypeHours/Unit Total **Total** FF Tap & Drain 1.00 each 875 875 18.447 4.743 23.190 9.002 32.192 875 23.190 9.002 32.192 Total for Activity 1CAC71292: 18.447 4.743

Line Item 2 - Tap & Drain

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE

Cost Risk

WBS No: 1CAC29 Activity ID: 1CAC71292

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect
WBS Filter
Activity Filter

S Filter 1CAC

Baseline Devl

Starts In FY

two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Quantity Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	23.04 Hours
I	actors	43 Hours		1 Difficulty Factor		0.5359 5/22/00 togo Factor		
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	189.71 Hours
I	actors	354 Hours		1 Difficulty Factor	,	0.5359 5/22/00 togo Factor		
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	531.40 Hours
I	actors	1340 Hours		 Difficulty Factor 		0.5359 5/22/00 togo Factor		
					,	0.74 Heatcount Cuts		
L	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	93.59 Hours
F	actors	236 Hours		 Difficulty Factor 		0.5359 5/22/00 togo Factor		
_						0.74 Heatcount Cuts		
	751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	4.29 Hours
I	actors	8 Hours		1 Difficulty Factor		0.5359 5/22/00 togo Factor		
L	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	33.23 Hours
I	actors	62 Hours		1 Difficulty Factor		0.5359 5/22/00 togo Factor		
	A5H	SUBCONTRACTED SRVS	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	4.742.71 Dollars
F	actors	118 Hours		75 Dollars per Hr		1 Difficulty Factor	0.5359 5/22/00 togo	Factor

Activity ID: 1CAC71293 Description: Remove proc. piping, Sys. 29, 6M KOH

Cost Risk 4 Schedule Risk 3

-												
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
3	PPR	1.00	each	EE	1.465	1.465	33.015	9.450	0	42.465	15.954	58.420
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1.305	1.305	0	1.305
	To	1.465	33.015	9.450	1.305	43.770	15.954	59.725				

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

s	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	734.00	Hours
Factor	s 734 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	286.00	Hours
Factor	s 286 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	226.44	Hours
Factor	s 306 Hours		 Difficulty Factor 					
	T				0.74 Heatcount Cuts			
751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	130.00	Hours
Factor	s 130 Hours		1 Difficulty Factor		1			
751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	50.00	Hours
Factor	s 50 Hours		1 Difficulty Factor		1			
751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	38.48	Hours
Factor	s 52 Hours		 Difficulty Factor 					
					0.74 Heatcount Cuts	T		
A57	LATA	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	9,300.00	Dollars
Factor	124 Hours		75 Dollars per hr		1 Difficulty Factor	T		
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	150.00	Dollars
Factor	s 2 Hours		75 Dollars per hr		1 Difficulty Factor			

WBS No: 1CAC29 Activity ID: 1CAC71293

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Ba
WBS Filter 1C
Activity Filter *

Baseline Devl 1CAC

Starts In FY

Line Item SYS - Contingency And Escalation

Resources	Cost Element		Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000	NONE	ZDEPT No Department	Linear	775.62	Dollars
_	Factors 775.619 Dollars						
	ESC ESCALATION	0000	NONE	ZDEPT No Department	Linear	529.34	Dollars

Factors 529.342 Dollars

Activity ID: 1CA	C71294 Description: Finalize closure doc., Sys. 29	9. 6M KOH		Cost Risk 2 Schedule Risk 3								
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4	Closure Documentation	1.00	each	EE	5	5	148	1.500	0	1.648	71	1.718
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	92	92	0	92
	Tot	al for Activi	ty 1CAC712	94:		5	148	1.500	92	1.740	71	1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00 H	lours
	Factors	5 Hours		 Difficulty Factor 					
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1,500.00 D	ollars
	Factors	20 Hours		75 Dollars per Hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

ces		Cost Element		Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	55.76	Dollars
	Factors	55.7588 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	36.13	Dollars

ors 36.1320 Dollars

WBS No: 1CAC:	30 Title: Sys 30 - 45% KOH											
Activity ID: 1CA	.C71301 Description: Plan/Eng prep to drain Sys. 3	30, 45% KC	H					Cost Risk	1 Schedule R	Risk 1		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	327	327	8.830	15.924	0	24.754	4.309	29.063
	Tot	al for Activi	tv 1CAC713	01:		327	8.830	15.924	0	24.754	4.309	29.063

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

ces		Cost Element		Skill			Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building	771 Closure Project	Linear	20.79	Hours
	Factors	110 Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor			
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building	771 Closure Project	Linear	9.83	Hours
	Factors	52 Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor			
	750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Buildina	771 Closure Proiect	Linear	6.24	Hours
	Factors	33 Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor			
	750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Buildina	771 Closure Proiect	Linear	76.73	Hours
	Factors	406 Hours		1 Difficulty Factor		0.189	5/22/00 togo Factor			

WBS No: 1CAC30 1CAC71301 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Baseline Devl Proiect 1CAC WBS Filter

					_	useille (, , , , , , , , , , , , , , , , , , ,	u Dusis oi L	Stilliate	Acti	ivity Filter *		St	arts In FY *	
750	STRAIGH	IT TIME BASE	M020 N	MANAGER	RS (GRAD	E 69 - 72)		K281S Build	dina 771 Closu			Linear		1.51 Hours	<u>. </u>
Facto	rs 8	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
750	STRAIGH	IT TIME BASE	P090 II	NDUSTRI	AL HYGIE	NISTS		K281S Build	dina 771 Closu	re Proiect		Linear		12.28 Hours	;
Facto	rs 65	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
750	STRAIGH	IT TIME BASE	P150 T	TRAINERS	3			K281S Build	dina 771 Closu	re Proiect		Linear		5.10 Hours	;
Facto	rs 27	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
750	STRAIGH	IT TIME BASE	P170 C	OTHER AD	DMINISTR	ATIVE & P	ROFE	K281S Build	dina 771 Closu	re Proiect		Linear		0.19 Hours	;
Facto	rs 1	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
750	STRAIGH	IT TIME BASE	S010 C	CHEMISTS	3			S100S SSC	C Salaried			Linear		0.57 Hours	;
Facto	rs 3	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
750	STRAIGH	IT TIME BASE	T050 R	RADIATIO	N CONTR	OL TECHN	NOLIGI	KC10H 771	Complex Steel	workers		Linear		54.05 Hours	;
Facto	rs 286	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
750	STRAIGH	IT TIME BASE	T060 D	D&D HAZ I	REDUC T	ECH / RISI	K RED	KC10H 771	Complex Steel	workers		Linear		113.40 Hours	;
Facto	rs 600	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
75′	1 OVERTIN	IE BASE & PRE.	T050 R	RADIATIO	N CONTR	OL TECHN	NOLIGI	KC10H 771	Complex Steel	workers		Linear		9.45 Hours	;
Facto	rs 50	Hours		1	Difficulty	Factor			39 5/22/00 t						
75´	1 OVERTIN	1E BASE & PRE.	T060 D	D&D HAZ I	REDUC T	ECH / RISI	K RED	KC10H 771	Complex Steel	workers		Linear		16.63 Hours	;
Facto	rs 88	Hours		1	Difficulty	Factor		0.18	39 5/22/00 t	ogo Factor					
A52	2 TENERA		E070 N	MECHANIC	CAL ENG	INEERS		K281S Build	dina 771 Closu	re Proiect		Linear		5.202.23 Dollar	S
Facto	rs 367	Hours		75	Dollars p	er hr		1	Difficulty	Factor		0.189 5/22	2/00 togo Facto		
A52	2 TENERA		E130 C	OTHER EN	NGINEER:	S		K281S Build	dina 771 Closu	re Proiect		Linear		1.176.53 Dollar	S
Facto		Hours		75	Dollars p			1	Difficulty			0.189 5/22	2/00 togo Facto		
A57	7 LATA		P160 T	TECHNIC/	AL WRITE	RS AND E	DITOR	K281S Build	ding 771 Closu	re Project		Linear		2,112.07 Dollar	S
Facto		Hours		75	Dollars p			1	Difficulty			0.189 5/22	2/00 togo Facto		
A5H	•	TRACTED SRVS	E080 N	NUCLEAR	(CRITICA	ALITY) ENG	SINEER	K281S Build	<u>ding 771 Closu</u>	re Project		Linear		2,755.62 Dollar	s
Facto		Hours		90	Dollars p			1	Difficulty				2/00 togo Facto		
A5H	H SUBCON	TRACTED SRVS	P070 C	COST EST	IMATOR	S PLANNE	RS AN	K281S Build	<u>ding 771 Closu</u>	re Project		Linear		2,126.25 Dollar	s
Facto		Hours		75	Dollars p			1	Difficulty			0.189 5/22	2/00 togo Facto		
A5H	H SUBCON	TRACTED SRVS	P080 H	HEALTH P	HYSICIS	ΓS		K281S Build	<u>ding 771 Closu</u>	re Project		Linear		2,551.50 Dollar	s
Facto		Hours		75	Dollars p	er hr		1	Difficulty	Factor			2/00 togo Facto	or	
1CAC	71302	Description: Tap & d	rain System :	30, 45% K	OH						Cost Risk	4 Schedule I	Risk 3		
em		Description		9	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
	Гар & Drain				1.00	each	EE	630	630	13.282		*		6.482	23.178
				Total	for Activit	y 1CAC713	302:		630	13.282	3.415				23.178

Line Item 2 - Tap & Drain

BOE

Activity ID:

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

s	Cost Element		Skill		Departmen	nt	Curve	Ouantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelwo	orkers	Linear	16.59	Hours
Factors	43 Hours		0.72 Difficulty Factor		0.5359 5/22/00 toa	io Factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIC	KC10H	771 Complex Steelwo	orkers	Linear	136.59	Hours
Factors	354 Hours		0.72 Difficulty Factor		0.5359 5/22/00 toa	o Factor		ı	,
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RE) KC10H	771 Complex Steelwo	orkers	Linear	382.61	Hours
Factors	1340 Hours		0.72 Difficulty Factor		0.5359 5/22/00 tog	o Factor			
					0.74 Heatcount	Cuts		ı	, , , , , , , , , , , , , , , , , , , ,
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RE) KC10H	771 Complex Steelwo	orkers	Linear	67.38	Hours
Factors	236 Hours		0.72 Difficulty Factor		0.5359 5/22/00 tog	o Factor			
					0.74 Heatcount	Cuts			

Page 32 of 85 6/22/00 8:43:58 PM OFFICIAL USE ONLY WBS No: 1CAC30 Rocky Flats Closure Proiect Proiect Baseline Devl
Activity ID: 1CAC71302 Baseline Cost and Basis of Estimate WBS Filter 1CAC

Total for Activity 1CAC71303:

							Jaseille C	JUST all	u Dasis Oi	LStilliate	Act	ivity Filter *		Ste	arts In FY *	
	751	OVERTIN	ME BASE & PRE.	C120	D&D SKI	LLED TRA	DES		KC10H 771	Complex Stee	lworkers		Linear		3.09 Hours	5
	Factor.	8	Hours		0.72	Difficulty	Factor		0.5	359 5/22/00	togo Factor					
	751	OVERTIN	ME BASE & PRE.	T050	RADIATION	ON CONTI	ROL TECHN	NOLIGI	KC10H 771	Complex Stee	lworkers		Linear		23.92 Hours	3
	Factor.	62	Hours		0.72	Difficulty	Factor		0.5	359 5/22/00	togo Factor				•	
	A5H	SUBCON	ITRACTED SRVS	E070	MECHAN	IICAL ENG	INEERS		K281S Bui	ldina 771 Closu	re Proiect		Linear		3.414.76 Dolla	rs
	Factor.	118	Hours		75	Dollars r	er Hr		0.7	2 Difficulty	Factor		0.5359 5/22	2/00 togo Facto	r	
Activity ID:	1CAC7	1303	Description: Remove	proc. pipin	a. Svs. 30), 45% KOI	4					Cost Risk	4 Schedule B	Risk 3		
Line Iten	ı		Description			Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
			•					Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
3	Р	PR				1.00	each	EE	1.055	1.055	23.771	6.804	0	30.575	11.600	42.175

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

S	Cost Element	Skill	<u>Department</u>	Curve	Ouantity Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KC10H 771 Complex Steelworkers	Linear	528.48 Hours
Factors	734 Hours	0.72 Difficulty Factor			
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOL	IGI KC10H 771 Complex Steelworkers	Linear	205.92 Hours
Factors	s 286 Hours	0.72 Difficulty Factor			
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RI	ED KC10H 771 Complex Steelworkers	Linear	163.04 Hours
Factors	s 306 Hours	0.72 Difficulty Factor			
	T		0.74 Heatcount Cuts		
751	OVERTIME BASE & PRE.	C120 D&D SKILLED TRADES	KC10H 771 Complex Steelworkers	Linear	93.60 Hours
Factors	s 130 Hours	0.72 Difficulty Factor			
751	OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOL	IGI KC10H 771 Complex Steelworkers	Linear	36.00 Hours
Factors	5 50 Hours	0.72 Difficulty Factor			
751	OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RI	ED KC10H 771 Complex Steelworkers	Linear	27.71 Hours
Factors	s 52 Hours	0.72 Difficulty Factor			
			0.74 Heatcount Cuts		
A57	LATA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	6.696.00 Dollars
Factors	124 Hours	75 Dollars per hr	0.72 Difficulty Factor		
A5H	SUBCONTRACTED SRVS	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	108.00 Dollars
Factors	s 2 Hours	75 Dollars per hr	0.72 Difficulty Factor		
					_

Activity ID: 1CAC71304 Description: Finalize closure doc., Sys. 30, 45% KOH Cost Risk 2 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4	Closure Documentation	1.00	each	EE	5	5	148	1,500	0	1.648	71	1.718
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	92	92	0	92
Total for Activity 1CAC71304:					5	148	1.500	92	1.740	71	1.810	

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

ces	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BAS	SE E050 E	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00	Hours
	Factors 5 Hours		1 Difficulty Factor					
	A5H SUBCONTRACTED S	SRVS E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00	Dollars
	Factors 20 Hours		75 Dollars per Hr		1 Difficulty Factor			

WBS No: 1CAC30 Activity ID: 1CAC71304

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC Activity Filter *

Starts In FY

Line Item SYS - Contingency And Escalation

Resources	Cost Element	Skill	Department	Curve	Ouantity Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	55.76 Dollars
	Factors 55.7588 Dollars				
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	36.13 Dollars
	Factors 36.1320 Dollars				

V	WBS No: 1CAC3	4 Sys 34 - B771/B774 Acid W	aste Lines										
Activity ID: 1CAC71341 Description: Plan/Eng prep to drain Sys. 34, Acid Waste Lines Cost Risk 1 Schedule Risk 1													
	Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
					Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
	1 Planning & Engineering Prep to Drain		1.00	each	EE	413	413	11.161	20.129	0	31.289	5.446	36.736
		al for Activi	ty 1CAC713	41 ·		413	11 161	20 129	0	31 289	5 446	36 736	

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

s	Cost Element	Skill		Department	Curve	Ouantity Units
750	STRAIGHT TIME BASE	E050 ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	26.28 Hours
Factor	s 110 Hours	1 Difficulty Factor	0.2389 5/22/00 togo Factor			
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINE	ER K281S	Building 771 Closure Project	Linear	12.42 Hours
Factor	s 52 Hours	1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	7.88 Hours
Factor	s 33 Hours	1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	96.99 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	1.91 Hours
Factor		1 Difficulty Factor	1	0.2389 5/22/00 togo Factor		, , , , , , , , , , , , , , , , , , , ,
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Proiect	Linear	15.53 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	P150 TRAINERS	K281S	Building 771 Closure Proiect	Linear	6.45 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROF	E K281S	Building 771 Closure Proiect	Linear	0.24 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	S010 ICHEMISTS	S100S	SSOC Salaried	Linear	0.72 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750		T050 RADIATION CONTROL TECHNOLI	GI KC10H		Linear	68.33lHours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RE	D KC10H		Linear	143.34 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
751	OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLI	GI⊥ KC10H		Linear	11.95 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
751	OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RE	D KC10H		Linear	21.02 Hours
Factor		1 Difficulty Factor		0.2389 5/22/00 togo Factor		
A52		E070 MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	6.575.72 Dollars
Factor		75 Dollars per hr		1 Difficulty Factor	0.2389 5/22/00 toad	
_A52		E130 OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.487.15 Dollars
Factor		75 Dollars per hr	D 1/00/0	1 Difficulty Factor	0.2389 5/22/00 togo	
A57	LATA	P160 TECHNICAL WRITERS AND EDITO	JR K281S		Linear	2,669.71 Dollars
<u>Factor</u>	y 149 Hours	75 Dollars per hr		1 Difficulty Factor	0.2389 5/22/00 togo	- Factor

WBS No: 1CAC34 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71341 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY A5H SUBCONTRACTED SRVS E080 NUCLEAR (CRITICALITY) ENGINEER | K281S | Building 771 Closure Project 3.483.16 Dollars Linear 162 Hours Dollars per hr Difficulty Factor 0.2389 5/22/00 togo Factor COST ESTIMATORS PLANNERS AN A5H SUBCONTRACTED SRVS P070 K281S Building 771 Closure Project 2 687 63 Dollars Linear Difficulty Factor 150 75 Dollars per hr 0.2389 5/22/00 togo Factor Hours A5H SUBCONTRACTED SRVS P080 HEALTH PHYSICISTS K281S Building 771 Closure Project Linear Dollars per hr Difficulty Factor 180 Hours 75 0.2389 5/22/00 togo Factor Factors Activity ID: 1CAC71342 Description: Tap & drain System 34, Acid Waste Lines Cost Risk 4 Schedule Risk Description BOE Labor Labor Hours Labor Cost Materials/ Sub Total Prime Burden Cost Line Item **Ouantity** Units Contingency Total Cost Type Hours/Unit Total Total Cost & Escalation Cost Tap & Drain 1.00 each FF 1.437 1.437 30.292 7.788 38.080 14.782 52.862 Total for Activity 1CAC71342: 1.437 30 292 7.788 38.080 14.782 52.862 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Units Cost Element Skill Resources Department Curve STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 37.84 Hours Difficulty Factor 43 Hours 750 STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 311.52 Hours Linear 354 Hours Difficulty Factor 153.68 Hours 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear Difficulty Factor Factors 236 Hours 0.88 Heatcount Cuts 0.74 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 872.61 Hours Factors 1340 Hours Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 7.04 Hours Linear 8 Hours Difficulty Factor Factors 751 OVERTIME BASE & PRE RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 54.56 Hours T050 Linear 62 Hours 0.88 Difficulty Factor Factors A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear 7.788.00 Dollars Dollars per Hr 0.88 Difficulty Factor Factors 118 Hours 75 Activity ID: 1CAC71343 Description: Remove proc. piping, Svs. 34, Acid Waste Lines Cost Risk 4 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Quantity Type Hours/Unit Total Total Cost & Escalation Cost PPR 29.053 37.369 1.00 each 1.289 1.289 8.316 14.178 51.548 Total for Activity 1CAC71343: 1.289 29 053 8 3 1 6 37 369 14.178 51.548 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. **Ouantity** Units Resources Cost Element Skill Department Curve 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 645.92 Hours Linear

RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers

0.74

Heatcount Cuts

T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers

Difficulty Factor

Difficulty Factor

Difficulty Factor

T050

0.88

734

286

306

Factors

750

Factors

Hours STRAIGHT TIME BASE

Hours

Hours

STRAIGHT TIME BASE

Page 35 of 85 6/22/00 8:43:59 PM OFFICIAL USE ONLY

Linear

Linear

251.68 Hours

199.27 Hours

Rocky Flats Closure Project 1CAC71343 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY KC10H 771 Complex Steelworkers 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES 114.40 Hours Linear 130 Hours Difficulty Factor RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 751 OVERTIME BASE & PRE Linear 44.00 Hours Difficulty Factor 50 Hours 751 OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 33.86 Hours 52 Difficulty Factor Factors Hours 0.88 Heatcount Cuts MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear 8.184.00 Dollars A57 LATA F070 Difficulty Factor Factors 124 Hours Dollars per hr 0.88 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 132.00 Dollars Difficulty Factor Hours 75 Dollars per hr 0.88 Factors Activity ID: 1CAC71344 Description: Finalize closure doc., Sys. 34, Acid Waste Lines Cost Risk 2 Schedule Risk Line Item Description **Ouantity** Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Type Hours/Unit Total Total Cost & Escalation Cost Closure Documentation FF 1.500 72 1.00 each 148 1.648 1.720 Total for Activity 1CAC71344: 5 148 1.500 1.648 72 1.720 Line Item 4 - Closure Documentation The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Cost Flement Resources Skill Curve Quantity Units Department 750 STRAIGHT TIME BASE E050 ENVIRONMENTAL ENGINEERS K281S Building 771 Closure Project Linear 5.00 Hours Hours Difficulty Factor SUBCONTRACTED SRVS OTHER ENGINEERS K281S Building 771 Closure Project 1.500.00 Dollars A5H Linear Dollars per Hr Difficulty Factor WBS No: 1CAC35 Svs 35 - B771/B774 Caustic Waste Line Activity ID: 1CAC71351 Description: Plan/Eng prep to drain Sys. 35, Caustic Waste Cost Risk 1 Schedule Risk 1 Contingency Total Prime Line Item BOELabor Labor Hours Labor Cost Materials/ Sub Burden Cost Total Cost Description **Ouantity** Units Type Hours/Unit Total Total Cost & Escalation Planning & Engineering Prep to Drain 1.00 each FF 1.115 1.115 30.128 54.336 84.464 14.702 99.166 30.128 54.336 Total for Activity 1CAC71351: 1.115 0 84.464 14.702 99.166 Line Item 1 - Planning & Engineering Prep to Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve Units K281S Building 771 Closure Project 750 STRAIGHT TIME BASE E050 ENVIRONMENTAL ENGINEERS Linear 70.94 Hours 0.6449 5/22/00 togo Factor 110 Hours Difficulty Factor 750 STRAIGHT TIME BASE NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project Linear 33 53 Hours 0.6449 5/22/00 togo Factor 52 Hours Difficulty Factor Factors K281S Building 771 Closure Project 21.28 Hours 750 STRAIGHT TIME BASE F120 SAFETY ENGINEERS Linear 33 Difficulty Factor 0.6449 5/22/00 togo Factor Hours Factors 750 STRAIGHT TIME BASE E130 OTHER ENGINEERS K281S Building 771 Closure Project 261.83 Hours Linear 406 Hours Difficulty Factor 0.6449 5/22/00 togo Factor 750 STRAIGHT TIME BASE MANAGERS (GRADE 69 - 72) K281S Building 771 Closure Project 5.16 Hours Linear Factors R Hours Difficulty Factor 0.6449 5/22/00 togo Factor 750 STRAIGHT TIME BASE P090 INDUSTRIAL HYGIENISTS K281S Building 771 Closure Project 41.92 Hours Linear Difficulty Factor 0.6449 5/22/00 togo Factor Factors 65 Hours

WBS No:

1CAC34

Page 36 of 85 6/22/00 8:43:59 PM OFFICIAL USE ONLY

Baseline Devl

Proiect

WBS No: 1CAC35 *Activity ID:* 1CAC71351

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC

			baseline Cost an	iu basis	Aci Estimate Aci	tivity Filter *		St	tarts In FY *	k
750 STR	RAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project		Linear		17.41 Hou	rs
Factors 2	7 Hours		1 Difficulty Factor	1	0.6449 5/22/00 togo Factor					
750 STR	RAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project		Linear		0.64 Hou	rs
Factors 1	Hours		1 Difficulty Factor		0.6449 5/22/00 togo Factor					
750 STR	RAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried		Linear		1.93 Hou	rs
Factors 3	Hours		1 Difficulty Factor		0.6449 5/22/00 togo Factor					
	RAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H			Linear		184.44 Hou	rs
_	86 Hours	1	1 Difficulty Factor		0.6449 5/22/00 togo Factor					
750 STR	RAIGHT TIME BASE	T060		KC10H	771 Complex Steelworkers		Linear		386.94 Hou	rs
	00 Hours		1 Difficulty Factor		0.6449 5/22/00 togo Factor					
	ERTIME BASE & PRE.	T050		KC10H			Linear		32.25 Hou	rs
Factors 5	- 110410	1	1 Difficulty Factor		0.6449 5/22/00 togo Factor					
	ERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers		Linear		56.75 Hou	rs
Factors 8		I	1 Difficulty Factor		0.6449 5/22/00 togo Factor					
	IERA	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Proiect		Linear		17.750.87 Dolla	ars
	67 Hours	I	75 Dollars per hr		1 Difficulty Factor		0.6449 5/22	/00 togo Facto		
	IERA	E130		K281S	Building 771 Closure Proiect		Linear		4.014.50 Dolla	ars
Factors 8	- 110410	I	75 Dollars per hr		1 Difficulty Factor		0.6449 5/22	/00 togo Facto		
A57 LAT		P160		K281S			Linear		7.206.76 Dolla	ars
	49 Hours	I	75 Dollars per hr		1 Difficulty Factor		0.6449 5/22	/00 togo Facto		
	SCONTRACTED SRVS	E080		K281S			Linear		9.402.64 Dolla	ars
	62 Hours		90 Dollars per hr		1 Difficulty Factor		0.6449 5/22	/00 togo Facto		
	SCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S			Linear	/o.o. = .	7,255.13 Dolla	ars
	50 Hours	D	75 Dollars per hr	1/00 / 0	1 Difficulty Factor		0.6449 5/22	/00 togo Facto		
	SCONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Building 771 Closure Project		Linear	/00 / F :	8,706.15 Dolla	ars
	80 Hours		75 Dollars per hr		1 Difficulty Factor	G . D. I	0.6449 5/22		r	
1CAC71352	Description: Tap & dra	ıın Syste	m 35, Caustic Waste Lines	ı		Cost Risk	4 Schedule R	isk 3		
2222	Description		Quantity Units ROF	Labor	r Labor Hours Labor Cost	Materials/Sub	Contingency	Total Prima	Rurdon Cost	To

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	1,209	1,209	25,473	6,549	0	32,022	12,423	44,445
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	59	59	0	59
	Tot	al for Activit	y 1CAC713	52:		1.209	25.473	6.549	59	32.080	12.423	44.504

Line Item 2 - Tap & Drain

BOE

Activity ID:

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es	Cost Element		Skill		Department	Curve	Ouantity Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	31.82 Hours
Factor	43 Hours		0.74 Difficulty Factor	,			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	261.96 Hours
Factor	354 Hours		0.74 Difficulty Factor	I			
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	733.78 Hours
Factor	1340 Hours		0.74 Difficulty Factor				
					0.74 Heatcount Cuts		
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	129.23 Hours
Factor	236 Hours		0.74 Difficulty Factor				
				I	0.74 Heatcount Cuts		
751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	5.92 Hours
Factor	8 Hours		0.74 Difficulty Factor	I			
751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	45.88 Hours
Factor	62 Hours		0.74 Difficulty Factor				

WBS No: 1CAC35 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71352 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 6.549.00 Dollars Linear 118 Hours 75 Dollars per Hr 0.74 Difficulty Factor Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Curve Units Department CON CONTINGENCY 0000 NONE ZDEPT No Department 34.90 Dollars Linear 34.8971 Dollars ESC ESCALATION ZDEPT No Department 23.82 Dollars 0000 NONE Linear 23.8165 Dollars Factors Activity ID: 1CAC71353 Description: Remove proc. piping, Sys.35, Caustic Waste Lines Cost Risk 4 Schedule Risk 3 BOE Labor Labor Hours Labor Cost Materials/ Sub Total Prime Line Item Description **Ouantity** Units Contingency Burden Cost Total Cost Cost & Escalation Type Hours/Unit **Total Total** Cost 1.00 each EE 1.084 1.084 24.431 6.993 0 31.424 11.778 43.202 SYS Contingency And Escalation 1.00 ea 1.202 1.202 1.202 0 0 Total for Activity 1CAC71353: 1.084 24.431 6.993 1.202 32.627 11.778 44.405 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 543.16 Hours 734 Hours Difficulty Factor STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 211.64 Hours Linear 286 Hours Difficulty Factor D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 167.57 Hours STRAIGHT TIME BASE Linear 306 0.74 Difficulty Factor Factors Hours 0.74 Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 96.20 Hours Linear 130 Hours 0.74 Difficulty Factor 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 37.00 Hours 50 Difficulty Factor Factors Hours 0.74 OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 28.48 Hours 751 Linear Factors 52 Hours Difficulty Factor 0.74 Heatcount Cuts A57 LATA F070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 6 882 00 Dollars Linear Dollars per hr Difficulty Factor 124 Hours 75 0.74 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 111 00 Dollars Linear 2 Hours 75 Dollars per hr 0.74 Difficulty Factor Factors Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 714.69 Dollars Factors 714.688 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 487.76 Dollars 487.758 Dollars Factors

BOE

Type

EE

EE

Labor

Hours/Unit

5

0

Units

Labor Hours

Total

5

0

Description: Finalize closure doc., System 35, Caustic Waste

Ouantity

1.00 each

1.00 ea

Description

Activity ID: 1CAC71354

Closure Documentation

Contingency And Escalation

Line Item

SYS

1.500

0

2 Schedule Risk

0

92

Contingency

& Escalation

3

1.648

92

Burden Cost

71

0

Total Cost

1.718

92

Total Prime

Cost

Cost Risk

Materials/ Sub

Cost

Labor Cost

Total

148

0

WBS No: 1CAC35 1CAC71354 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71354:

Proiect WBS Filter

148

Baseline Devl 1CAC

1.500

1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

s		Cost Element		Skill		Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00 H	Hours
	Factors	5 Hours		1 Difficulty Factor					
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00	Oollars
	Factors	20 Hours		75 Dollars per Hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

es	Skill Skill		Skill		Department	Curve	Quantity	Units
C	ON CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	55.76	Dollars
Fac	tors 55.7588 Dollars							
	SC ESCALATION	0000	NONE	7DFPT	No Department	Linear	36 13	Dollars

36.1320 Dollars Factors

WBS NO: ICACS/	Tuue:	Sys 37 - House Vacu
Activity ID: 1CAC71371	Description:	Plan/Eng prep to drain

Activity ID: 1CA	C71371 Description: Plan/Eng prep to drain Sys.				Cost Risk	1 Schedule R	risk 1					
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1,684	1,684	45,498	82,056	0	127,554	21,968	149,522
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3,526	3,526	0	3,526
Total for Activity 1CAC71371:					1.684	45.498	82.056	3.526	131.080	21.968	153,048	

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es Cost Element	Skill	Department	Curve	Ouantity Units
750 STRAIGHT TIME BASE	E050 ENVIRONMENTAL ENGINEERS	K281S Building 771 Closure Project	Linear	107.13 Hours
Factors 110 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Project	Linear	50.64 Hours
Factors 52 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	K281S Building 771 Closure Project	Linear	32.14 Hours
Factors 33 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	395.40 Hours
Factors 406 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	K281S Building 771 Closure Project	Linear	7.79 Hours
Factors 8 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	K281S Building 771 Closure Project	Linear	63.30 Hours
Factors 65 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	P150 TRAINERS	K281S Building 771 Closure Project	Linear	26.30 Hours
Factors 27 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	K281S Building 771 Closure Project	Linear	0.97 Hours
Factors 1 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	S010 CHEMISTS	S100S SSOC Salaried	Linear	2.92 Hours
Factors 3 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	278.54 Hours
Factors 286 Hours	1 Difficulty Factor	0.9739 5/22/00 togo Factor		

WBS No: 1CAC37 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71371 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 584.34 Hours Linear 600 Hours Difficulty Factor 0.9739 5/22/00 togo Factor 751 OVERTIME BASE & PRE RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 48.69 Hours 0.9739 5/22/00 togo Factor 50 Difficulty Factor Hours 751 OVERTIME BASE & PRE D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear 85.70 Hours 0.9739 5/22/00 togo Factor 88 Hours Difficulty Factor Factors A52 TENERA MECHANICAL ENGINEERS 26.806.60 Dollars K281S Building 771 Closure Project Linear 367 Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Factors A52 TENERA OTHER ENGINEERS 6.062.53 Dollars E130 K281S Building 771 Closure Project Linear 83 Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Factors TECHNICAL WRITERS AND EDITOR A57 LATA P160 K281S Building 771 Closure Project Linear 10.883.33 Dollars Factors 149 Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor SUBCONTRACTED SRVS Building 771 Closure Project A5H E080 NUCLEAR (CRITICALITY) ENGINEER K281S Linear 14.199.46 Dollars 0.9739 5/22/00 togo Factor 162 Hours 90 Dollars per hr Difficulty Factor A5H SUBCONTRACTED SRVS P070 COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project 10 956 38 Dollars Linear Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Factors 150 A5H SUBCONTRACTED SRVS P080 HEALTH PHYSICISTS K281S Building 771 Closure Project Linear 13.147.65 Dollars Factors 180 75 Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Curve Units ZDEPT No Department CON CONTINGENCY 0000 NONE Linear 2 054 64 Dollars Factors 2054.64 Dollars ESC ESCALATION ZDEPT No Department 1.471.18 Dollars 0000 NONE Linear Factors 1471.18 Dollars Activity ID: 1CAC71372 Description: Tap & drain System 37. House Vacuum 12 Cost Risk 4 Schedule Risk Line Item Description **Ouantity** Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost & Escalation Type Hours/Unit **Total** Total Cost Cost Tap & Drain 1.00 each EE 13.115 13.115 276.413 71.066 347.478 131.849 479.327 Contingency And Escalation 1.00 ea FF 26.104 26.104 26.104 Total for Activity 1CAC71372: 13.115 276.413 71.066 26.104 373.582 131.849 505.431 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units C120 D&D SKILLED TRADES 750 STRAIGHT TIME BASE KC10H 771 Complex Steelworkers Linear 345.29 Hours Difficulty Factor Factors 43 Hours STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 2.842.62 Hours 354 Hours Difficulty Factor Factors 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 7.962.55 Hours Linear **Factors** 1340 Hours Difficulty Factor Heatcount Cuts STRAIGHT TIME BASE D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 1.402.36 Hours Difficulty Factor Factors 236 Hours 8.03 0.74 Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 64.24 Hours Linear Difficulty Factor 8 Hours Factors RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers **OVERTIME BASE & PRE** Linear 497.86 Hours

Difficulty Factor

SYS

Factors

62

Hours

Page 40 of 85 6/22/00 8:44:01 PM OFFICIAL USE ONLY WBS No: 1CAC37 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71372 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** <u>Activi</u>ty Filter Starts In FY A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 71.065.50 Dollars Linear 118 Hours 75 Dollars per Hr 8.03 Difficulty Factor Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Curve Department CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 16.024.75 Dollars 16024.8 Dollars ESC ESCALATION ZDEPT No Department 10.079.18 Dollars 0000 NONE Linear Factors 10079.2 Dollars Activity ID: 1CAC71373 Description: Remove proc. piping, Sys. 37, House Vacuum 12 Cost Risk 4 Schedule Risk 3 Labor Line Item BOE Labor Hours Labor Cost Materials/ Sub Total Prime Description **Ouantity** Units Contingency Burden Cost Total Cost Hours/Unit & Escalation Type Total **Total** Cost Cost 1.00 each EE 11.763 11.763 265.113 75.884 0 340.997 126.459 467.456 25.457 SYS Contingency And Escalation 1.00 ea 25.457 25.457 0 Total for Activity 1CAC71373: 11.763 265.113 75.884 25.457 366.454 126.459 492.913 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 5.894.02 Hours 734 Hours Difficulty Factor STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 2.296.58 Hours Linear 286 Hours Difficulty Factor D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 1.818.31 Hours 306 8.03 Difficulty Factor Factors Hours 0.74 Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 1.043.90 Hours Linear Factors 130 Hours 8.03 Difficulty Factor 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 401.50 Hours 50 Difficulty Factor Factors Hours OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 308 99 Hours 751 Linear Factors 52 Hours Difficulty Factor 0.74 Heatcount Cuts A57 LATA F070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 74 679 00 Dollars Linear Dollars per hr Difficulty Factor Factors 124 Hours 75 8.03 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 1 204 50 Dollars Linear 2 Hours 75 Dollars per hr 8.03 Difficulty Factor Factors Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 15.627.85 Dollars Factors 15627.9 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 9.829.54 Dollars 9829.55 Dollars Factors Activity ID: 1CAC71374 Description: Finalize closure doc., Sys. 37, House Vacuum 12 Cost Risk 2 Schedule Risk 3

BOE

Type

EE

EE

Units

Ouantity

1.00 each

1.00 ea

Line Item

SYS

Description

Closure Documentation

Contingency And Escalation

Labor

Hours/Unit

5

0

Labor Hours

Total

5

0

Labor Cost

Total

148

0

1.500

0

Contingency

& Escalation

0

92

Total Prime

Cost

1.648

92

Burden Cost

71

0

Total Cost

1.718

92

Materials/ Sub

Cost

WBS No: 1CAC37 1CAC71374 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71374:

Proiect WBS Filter

148

Baseline Devl 1CAC

1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element		Skill		Department	Curve	Quantity Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00 Hours
	Factors	5 Hours		1 Difficulty Factor				
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.500.00 Dollars
	Factors	20 Hours		75 Dollars per Hr		1 Difficulty Factor		

Line Item SYS - Contingency And Escalation

BOE

Resources

es	Skill Skill		Skill		Department	Curve	Quantity	Units
C	ON CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	55.76	Dollars
Fac	tors 55.7588 Dollars							
	SC ESCALATION	0000	NONE	7DFPT	No Department	Linear	36 13	Dollars

Factors 36.1320 Dollars

WBS No:	1CAC38	Title:	Svs 38 - Fred	n 12 Rm 114

TO THE RESTREET	Time: CV3 30 TICON 12 Kill 114											
Activity ID: 1CA	C71381 Description: Plan/Eng prep to drain Sys. 3				Cost Risk	1 Schedule R	isk 1					
Line Item	Description	Quantity	Units B	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
			T	ype	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00 e	ach	EE	842	842	22,749	41,028	0	63,777	11,061	74,838
SYS	Contingency And Escalation	1.00 e	a I	EE	0	0	0	0	607	607	0	607
Total for Activity 1CAC71381:						842	22,749	41,028	607	64,383	11,061	75,445

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es	Cost Element		Skill		Department	Curve	Ouantity	Units
750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	53.56	Hours
Factors	s 110 Hours		0.5 Difficulty Factor		0.9739 5/22/00 togo Factor			,
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Proiect	Linear	25.32	Hours
Factors	s 52 Hours		0.5 Difficulty Factor		0.9739 5/22/00 togo Factor			,
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Proiect	Linear	16.07	Hours
Factors	s 33 Hours		0.5 Difficulty Factor		0.9739 5/22/00 togo Factor			,
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Proiect	Linear	197.70	Hours
Factors	s 406 Hours		0.5 Difficulty Factor		0.9739 5/22/00 togo Factor			,
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Proiect	Linear	3.90	Hours
Factors	s 8 Hours		0.5 Difficulty Factor		0.9739 5/22/00 togo Factor			,
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	31.65	Hours
Factors	s 65 Hours		0.5 Difficulty Factor	I	0.9739 5/22/00 togo Factor			
750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	13.15	Hours
Factors	s 27 Hours		0.5 Difficulty Factor	,	0.9739 5/22/00 togo Factor			,
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	0.49	Hours
Factors	s 1 Hours		0.5 Difficulty Factor	I	0.9739 5/22/00 togo Factor			
750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	1.46	Hours
Factors	s 3 Hours		0.5 Difficulty Factor	I	0.9739 5/22/00 togo Factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	139.27	Hours
Factors	s 286 Hours		0.5 Difficulty Factor		0.9739 5/22/00 togo Factor			

WBS No: 1CAC38 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71381 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 292.17 Hours Linear 600 Hours Difficulty Factor 0.9739 5/22/00 togo Factor 24.35 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 0.9739 5/22/00 togo Factor 50 Difficulty Factor Hours 751 OVERTIME BASE & PRE D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear 42.85 Hours 0.9739 5/22/00 togo Factor Difficulty Factor Factors 88 Hours A52 TENERA MECHANICAL ENGINEERS 13.403.30 Dollars K281S Building 771 Closure Project Linear 367 Hours 75 Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Factors A52 TENERA OTHER ENGINEERS E130 K281S Building 771 Closure Project 3.031.26 Dollars Linear 83 Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Factors TECHNICAL WRITERS AND EDITOR A57 LATA P160 K281S Building 771 Closure Project Linear 5.441.67 Dollars Factors 149 Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor SUBCONTRACTED SRVS A5H E080 NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project Linear 7 099 73 Dollars 0.9739 5/22/00 togo Factor 162 Hours 90 Dollars per hr Difficulty Factor A5H SUBCONTRACTED SRVS P070 COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project 5 478 19 Dollars Linear Hours Dollars per hr Difficulty Factor 0.9739 5/22/00 togo Factor Factors 150 A5H SUBCONTRACTED SRVS P080 HEALTH PHYSICISTS K281S Building 771 Closure Project Linear 6.573.83 Dollars Factors 180 75 Dollars per hr 0.5 Difficulty Factor 0.9739 5/22/00 togo Factor Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Curve Units ZDEPT No Department CON CONTINGENCY 0000 NONE Linear 353 49 Dollars Factors 353.486 Dollars ESC ESCALATION ZDEPT No Department 253.11 Dollars 0000 NONE Linear 253.107 Dollars Activity ID: 1CAC71382 Description: Tap & drain System 38, Freon 12, Rm 114 Cost Risk 4 Schedule Risk 3 Line Item Description Quantity Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Type Hours/Unit Total Total Cost & Escalation Cost Tap & Drain 1.00 each EE 800 800 16.867 4.337 21.204 8.046 29.249 SYS Contingency And Escalation 1.00 ea FF 0 0 1.593 1.593 0 1.593 Total for Activity 1CAC71382: 800 16.867 4.337 1 593 22 796 8.046 30.842 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units C120 D&D SKILLED TRADES 750 STRAIGHT TIME BASE KC10H 771 Complex Steelworkers Linear 21.07 Hours Difficulty Factor Factors 43 Hours STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear 173.46 Hours 354 Hours Difficulty Factor Factors 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 485.88 Hours Linear **Factors** 1340 Hours Difficulty Factor Heatcount Cuts 85.57 Hours STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear Difficulty Factor Factors 236 Hours 0.49 0.74 Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 3.92 Hours Linear Difficulty Factor 8 Hours Factors RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers **OVERTIME BASE & PRE** Linear 30.38 Hours

Difficulty Factor

Factors

62

Hours

Page 43 of 85 6/22/00 8:44:02 PM *OFFICIAL USE ONLY*

WBS No: 1CAC38 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71382 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 4.336.50 Dollars Linear 118 Hours 75 Dollars per Hr 0.49 Difficulty Factor Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Curve Units Department CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 977.85 Dollars 977.849 Dollars ESC ESCALATION ZDEPT No Department 615.04 Dollars 0000 NONE Linear Factors 615.044 Dollars Activity ID: 1CAC71383 Description: Remove proc. piping, System 38, Freon 12, Rm 114 Cost Risk 4 Schedule Risk 3 BOE Labor Labor Hours Labor Cost Materials/ Sub Total Prime Burden Cost Line Item Description **Ouantity** Units Contingency Total Cost & Escalation Type Hours/Unit Total **Total** Cost Cost 1.00 each EE 718 718 16.178 4.631 0 20.808 7.717 28.525 SYS Contingency And Escalation 1.00 ea 1.553 1.553 1.553 0 0 Total for Activity 1CAC71383: 718 16.178 4.631 1.553 22.361 7.717 30.078 Line Item 3 - PPR The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 359.66 Hours 734 Hours Difficulty Factor STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 140.14 Hours Linear 286 Hours Difficulty Factor D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 110.96 Hours STRAIGHT TIME BASE Linear 306 0.49 Difficulty Factor Factors Hours 0.74 Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 63.70 Hours Linear 130 Hours 0.49 Difficulty Factor 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 24.50 Hours 50 Difficulty Factor Factors Hours T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 18 86 Hours 751 OVERTIME BASE & PRE Linear Factors 52 Hours 0.49 Difficulty Factor 0.74 Heatcount Cuts A57 LATA F070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 4 557 00 Dollars Linear Dollars per hr Difficulty Factor 124 Hours 75 0.49 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 73 50 Dollars Linear 2 Hours 75 Dollars per hr 0.49 Difficulty Factor Factors Line Item SYS - Contingency And Escalation BOE Cost Element Resources Skill Department Curve Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 953.63 Dollars Factors 953.63 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 599.81 Dollars 599.810 Dollars Factors Activity ID: 1CAC71384 Description: Finalize closure documents, Sys. 38, Freon 12 Cost Risk 2 Schedule Risk 3

BOE

Type

EE

EE

Units

Ouantity

1.00 each

1.00 ea

Line Item

SYS

Description

Closure Documentation

Contingency And Escalation

Labor

Hours/Unit

5

0

Labor Hours

Total

5

0

Labor Cost

Total

148

0

1.500

0

Contingency

& Escalation

0

92

Total Prime

Cost

1.648

92

Burden Cost

71

0

Total Cost

1.718

92

Materials/ Sub

Cost

WBS No: 1CAC38 1CAC71384 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Total for Activity 1CAC71384:

Proiect WBS Filter Baseline Devl 1CAC

Activity Filter 148 1.500 1.810

Line Item 4 - Closure Documentation

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		Cost Element	Sk	ill		Curve	Ouantity	Units	
	750	STRAIGHT TIME BASE	E050 ENVIRONMEN	TAL ENGINEERS	K281S	Building 771 Closure Project	Linear	5.00	Hours
	Factors	5 Hours	1 Diff	iculty Factor					
	A5H	SUBCONTRACTED SRVS	E130 OTHER ENGIN	IEERS	K281S	Building 771 Closure Proiect	Linear	1.500.00	Dollars
	Factors	20 Hours	75 Dol	lars per Hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

WBS No: 1CAC39

es	Cost Element		Skill		Department	Curve	Quantity	Units
C	ON CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	55.76	Dollars
Fac	tors 55.7588 Dollars							
	ESC ESCALATION		NONE	7DFPT	No Department	Linear	36 13	Dollars

Factors 36.1320 Dollars

Line Item	Description

Sys 39 - Process Steam

Activity ID: 1CA	C71391 Description: Plan/Eng prep to drain Sys. 3	39, Process S	Steam				Cost Risk	1 Schedule R	?isk 1		
Line Item	Description	Quantity	Units BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
			Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00 ea	ach EE	1,729	1,729	46,717	84,255	0	130,972	22,284	153,256
SYS	Contingency And Escalation	1.00 ea	a EE	0	0	0	0	8,125	8,125	0	8,125
	Tot	al for Activity	1CAC71391:		1,729	46,717	84,255	8,125	139,097	22,284	161,381

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es <u>Cost Element</u>		Skill		Department	Curve	Ouantity	Units
750 STRAIGHT TIME BAS	E050 EN	NVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00	Hours
Factors 110 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	E080 NL	UCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00	Hours
Factors 52 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	E120 SA	AFETY ENGINEERS	K281S	Building 771 Closure Proiect	Linear	33.00	Hours
Factors 33 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	E130 O	THER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00	Hours
Factors 406 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	M020 MA	ANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00	Hours
Factors 8 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	P090 IN	IDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00	Hours
Factors 65 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	P150 TR	RAINERS	K281S	Building 771 Closure Project	Linear	27.00	Hours
Factors 27 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	P170 O1	THER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00	Hours
Factors 1 Hours		1 Difficulty Factor					
750 STRAIGHT TIME BAS	S010 CH	HEMISTS	S100S	SSOC Salaried	Linear	3.00	Hours
Factors 3 Hours		1 Difficulty Factor		1		1	
750 STRAIGHT TIME BAS	T050 RA	ADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	286.00	Hours
Factors 286 Hours	1	1 Difficulty Factor					

WBS No: Activity ID:	1CAC39 1CAC71391				1	Rockv F						S Filter	Baseline 1CAC	e Devl			
												vity Filter	*			Starts In FY	*
		HT TIME BASE	T060				RED	KC10H	771 C	Complex Steely	workers			Linear		600.00	lours
	Factors 600	Hours		1	Difficulty		1									ı	
	•	ME BASE & PRE.	T050	RADIATION			OLIGI	KC10H	771 C	Complex Steely	workers			Linear		50.00	lours
	Factors 50	Hours	1 1	_1	Difficulty				1								
	•	ME BASE & PRE.	T060	D&D HAZ			RED	KC10H	771 C	Complex Steely	workers			Linear		88.00	lours
	Factors 88	Hours	1 1	_1	Difficulty				1								
	A52 TENERA		E070		IICAL ENC			K281S	Buildi	na 771 Closur				Linear		27.525.00	Oollars
	Factors 367	Hours	1 1	75	Dollars				1	Difficulty							
	A52 TENERA		E130		ENGINEER			K281S	Buildi	na 771 Closur				Linear		6.225.00	Oollars
	Factors 83	Hours		75	Dollars				1	Difficulty							
	A57 LATA		P160				ITOR	K281S	Buildi	na 771 Closur				Linear		11.175.00	Dollars
	Factors 149	Hours		75	Dollars				1	Difficulty							
	-	TRACTED SRVS	E080				NEER	K281S	Buildi	na 771 Closur				Linear		14.580.00	Oollars
	Factors 162	Hours		90	Dollars				1	Difficulty							
	•	TRACTED SRVS	P070	COST ES			SAN	K281S	Buildi	na 771 Closur				Linear		11.250.00	Oollars
	Factors 150	Hours		75	Dollars				1	Difficulty							
	A5H SUBCO	ITRACTED SRVS	P080	HEALTH	PHYSICIS	STS		K281S	Buildi	na 771 Closur	e Proiect			Linear		13.500.00	Oollars
	Factors 180	Hours		75	Dollars	per hr			1	Difficulty I	Factor						
Line Item SYS	- Contingency A	nd Escalation															
BOE																	
Resources		Cost Element			Skill					Departm	ient			Curve		Quantity	Units
Resources	CON CONTIN		0000	NONE	Skill			7DEPT	No D	epartment	ш			Linear		4.902.35	
	,	35 Dollars	1 0000	III					INO D	Dominion				шиса		7.002.00[ZOIIGIS
	ESC ESCALA		0000	NONE				7DFPT	No De	epartment				Linear		3.222.64	Oollars
		64 Dollars	1 0000						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DOG! III OI II				Linoui		0.222.01	Johano
Activity ID:		Description: Tap & di	rain System	39 Proc	ess Steam	1						Cost Risk	4	Schedule R	isk 3		
	10/10/1002		Tail Oyoton	100,1100											_		
Line Item		Description			Quantity	Units	BOE	Labor		Labor Hours	Labor Cost	Materials/ S	ll l	tingency	Total Prin	ne Burden C	ost Total Cos
_							Type	Hours/U		Total	Total	Cost		Escalation	Cost		
2	Tap & Drain					each	EE	1.	364	1.364	29.033	9.8		0	38.9		
SYS	Contingency	And Escalation			1.00		EE		0	0	0		0	2.873		373	0 2.8
				Tota	al for Activ	ity 1CAC7139	92:		L	1.364	29.033	9.8	68	2.873	41.7	74 13.	349 55.6
Line Item 2 - 1		resources and skill qu		c		1 6 .									1		
BOE	two years ago liquids has b to the variou	. During the last yea een modified to take a s systems. The result	ır, a det ıdvantage	ailed a	nalysis actual	of actual charge co	cost:	s and to	imes gress	by labor w ion analys	as conduct is to dete	ed upon c rmine cos	omplet t driv	ed syst	ems. Th	e original d difficul	baseline for
	presented her	ein.															
Resources		Cost Element			Skill					Departm	ant			Curve		Ouantity	Units
Resources	750 STRAIG	HT TIME BASE	C120	חצט פגוו	LLED TRA	DES		KC10H	771 C	Complex Steely				Linear		47.94	
	Factors 43	Hours	1 0120	2.23	Difficulty			NC IUI		OTTIDIEY STEEL	MOIVEIS			LIIICAI		47.341	IUUIS
	1 aciois 43	110015		2.23	Dillicult	y i aciUl			0.5	Headcour	nt Cutc						
	750 STRAIG	HT TIME BASE	T050	ם א רו א דוי		DOL TECHNI	OLIGI.	KC10H		omplex Steely				Linear		394.71	loure
								I/O I/I/I	μ	WILLINGY OFFER	MAIVEIS			Lilitai		J94./ H	IUUIO
			1 1000		Difficult	/ Factor											
	Factors 354	Hours	1 1000	2.23	Difficulty	/ Factor			0.5	Headcour	nt Cute						

T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers

T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers

0.24 Headcount Cuts

0.24 Headcount Cuts
KC10H 771 Complex Steelworkers

Difficulty Factor

Difficulty Factor

Difficulty Factor

2.23

2.23

C120 D&D SKILLED TRADES

750 STRAIGHT TIME BASE

750 STRAIGHT TIME BASE

Hours

Hours

Hours

OVERTIME BASE & PRE.

1340

236

8

Factors

Factors

751

Factors

 0.5
 Headcount Cuts

 Page 46 of 85
 6/22/00 8:44:03 PM
 OFFICIAL USE ONLY

Linear

Linear

Linear

717.17 Hours

126.31 Hours

8.92 Hours

BS No: tivity ID:	1CAC39 1CAC713	392					Rocky Fla	et and Rae			WB	<i>S Filter</i> 1C	CAC			
												ivity Filter *			Starts In FY	*
	751 O'		BASE & PRE.	T050	•		ROL TECHNO	LIGI KC10I	1 771 C	Complex Steel	lworkers		Linear		69.13 H	ours
	Factors	62	Hours		2.23	Difficulty	/ Factor									
					1				0.5	Headcou						
	A5H SI	UBCONTR	ACTED SRVS	E070	MECHAI	NICAL ENG	SINEERS	K2813	Buildi	ina 771 Closu	re Proiect		Linear		9.867.75 D	ollars
	Factors	118	Hours		75	Dollars	oer Hr		2.23	Difficulty	Factor					
									0.5	Headcou	int Cuts					
e Item SY BOE	'S - Continge	ency And E	Escalation													
Resources	9	Cos	st Element			Skill				Departn	nent		Curve		Quantity	Units
1000011001		ONTINGE		0000	NONE	Ditti		ZDEP	T No De	epartment	710711		Linear		1.763.52 D	
		1763.52		1 0000	III					ODGITITION		'	Linoui		1.100.0210	Ollaro
		SCALATIO		0000	NONE			ZDED	T No D	epartment			Linear		1.109.21 D	ollare
		1109.21		1 0000	INCINL			ZULF	ים טווו	epartifient			Lilleai		1.109.2110	Ullais
ivia. ID.	1CAC71393		Description: Remove	nraa nini	na Cuatan	- 20 Dras	on Ctoom					Cost Risk	4 Schedule R	Risk 3		
IVITY ID:	TCAC/1393	3	Description: Remove	proc. pipi	ng, Syster	11 39, P1006	1		1							
Line Iten	n		Description			Quantity		BOE Lab		Labor Hours	Labor Cost	Materials/ Sub		Total Prime	Burden Co	st Total
								Type Hours	/Unit	Total	Total	Cost	& Escalation	Cost		
	PPR					1.00	each	EE	1.530	1.530	34.504	10.537	0	45.04	0 16.4	58
'S	Contin	naency And	d Escalation			1.00	ea	EE	0	0	0	0	3.349	3.34	9	0
					Tot	al for Activ	ty 1CAC71393			1.530	34.504	10.537				58
0E	two year liquids to the v	rs ago. has been various s	sources and skill qu During the last yea n modified to take a systems. The result	r, a de dvantag	tailed a	analysis e actual	of actual charge com	costs and parison, m	times egress	by labor w sion analys	was conduct sis to dete	ed upon com rmine cost	pleted syst driving fac	ems. The	original difficult	baseline y of acc
	two year liquids to the v presente	rs ago. has been various s ed herein	During the last yean modified to take a systems. The result	r, a de dvantag	tailed a	analysis e actual lyses ha	of actual charge com	costs and parison, m	times egress	by labor w sion analys aining liqu	was conduct sis to dete uids system	ed upon com rmine cost	pleted syst driving fac eflected in	ems. The tors, and the new	original difficult baseline d	baseline y of acc ata
	two year liquids to the v presente	rs ago. has been various s ed herein	During the last yean modified to take a systems. The result i.	r, a de dvantag s of th	tailed a e of the ose ana	analysis e actual lyses ha Skill	of actual charge com ve been app	costs and parison, n lied to th	times regress ne rema	by labor wasion analysaining liqu	was conduct sis to dete uids system nent	ed upon com rmine cost	pleted syst driving fac eflected in Curve	ems. The tors, and the new	original difficult baseline d	baseline y of acc ata Units
	two year liquids to the v presente	rs ago. has been various s ed herein Cos	During the last yean modified to take a systems. The result i. st Element TIME BASE	r, a de dvantag s of th	tailed a e of the ose ana:	analysis e actual lyses ha Skill	of actual charge com we been app DES	costs and parison, n lied to th	times regress ne rema	by labor w sion analys aining liqu	was conduct sis to dete uids system nent	ed upon com rmine cost	pleted syst driving fac eflected in	ems. The tors, and the new	original difficult baseline d	baseline y of acc ata Units
	two year liquids to the v presente	rs ago. has been various s ed herein Cos	During the last yean modified to take a systems. The result i.	r, a de dvantag s of th	tailed a e of the ose ana	analysis e actual lyses ha Skill	of actual charge com we been app DES	costs and parison, n lied to th	times regress ne rema	by labor wasion analysaining liques because Department Complex Steel	was conducts is to deterior to	ed upon com rmine cost	pleted syst driving fac eflected in Curve	ems. The tors, and the new	original difficult baseline d	baseline y of acc ata Units
	two year liquids to the v presente 750 ST	rs ago. has been various s ed herein Cos TRAIGHT 734	During the last yean modified to take a systems. The result in the resul	r, a de dvantag s of th C120	tailed at the ose ana. D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficulty	of actual charge com we been app DES Factor	costs and parison, 1 lied to th	times regress ne rema	by labor wasion analysaining liques Department Complex Steel	was conduct sis to dete uids system ment lworkers unt Cuts	ed upon com rmine cost	pleted syst driving fac eflected in <u>Curve</u> <u>Linear</u>	ems. The tors, and the new	original difficult baseline d Ouantity 818.41 H	baseline y of acc ata <u>Units</u> ours
	two year liquids to the v presente Too State of the stat	rs ago. has been various s ed herein Cos TRAIGHT 734	During the last year modified to take a systems. The result in the resul	r, a de dvantag s of th	D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficulty	of actual charge com we been app DES Factor	costs and parison, 1 lied to th	times regress ne rema	by labor wasion analysaining liques Department Complex Steel	was conduct sis to dete uids system ment lworkers unt Cuts	ed upon com rmine cost	pleted syst driving fac eflected in Curve	ems. The tors, and the new	original difficult baseline d	baseline y of acc ata <u>Units</u> ours
	two year liquids to the v presente 750 ST	rs ago. has been various s ed herein Cos TRAIGHT 734	During the last yean modified to take a systems. The result in the resul	r, a de dvantag s of th C120	tailed at the ose ana. D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficulty	of actual charge com we been app DES Factor	costs and parison, 1 lied to th	771 C	by labor wasion analysaining liques because Departs Complex Steel Headcou	was conduct sis to dete sis to dete side system ment lworkers unt Cuts	ed upon com rmine cost	pleted syst driving fac eflected in <u>Curve</u> <u>Linear</u>	ems. The tors, and the new	original difficult baseline d Ouantity 818.41 H	baseline y of acc ata <u>Units</u> ours
	two year liquids to the v presente s 750 S Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours	r, a de dvantag s of th C120	D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficult ION CONT	of actual charge comve been app DES / Factor ROL TECHNO	costs and parison, 1 lied to the KC10	times regress re remains 1 771 C 0.5 1 771 C 0.5	by labor was ion analystic aining lique Departm Complex Steel Headcou	was conduct sis to dete sis to dete sids system ment lworkers unt Cuts lworkers unt Cuts	ed upon com rmine cost	upleted syst driving fac efflected in Curve Linear	ems. The tors, and the new	original difficult baseline d Ouantity 818.41 H	Daseline y of acc ata Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S 750 S	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours	r, a de dvantag s of th C120	D&D SKI 2.23 RADIATI 2.23 D&D HA	analysis e actual lyses ha Skill ILLED TRA Difficulty Difficulty Z REDUC	of actual charge com we been app DES / Factor ROL TECHNO / Factor	costs and parison, 1 lied to the KC10	times regress re remains 1 771 C 0.5 1 771 C 0.5	by labor was ion analystic aining lique Departm Complex Steel Headcou	was conduct sis to dete sis to dete sids system ment lworkers unt Cuts lworkers unt Cuts	ed upon com rmine cost	pleted syst driving fac eflected in <u>Curve</u> <u>Linear</u>	ems. The tors, and the new	original difficult baseline d Ouantity 818.41 H	Daseline y of account units ours ours
	two year liquids to the v presente s 750 S Factors	rs ago. has been various s ed herein Cos TRAIGHT 1 286 TRAIGHT 1	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours	r, a de dvantag s of th C120	D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficult ION CONT	of actual charge com we been app DES / Factor ROL TECHNO / Factor	costs and parison, 1 lied to the KC10	0.5 H 771 C	by labor wasion analysaining liques because the beauton by labor wasion analysaining liques beauton beauton by labor wasion analysis and beauton by labor wasion analysis and beauton by labor wasion	was conduct sis to dete sis to dete uids system ment lworkers unt Cuts lworkers unt Cuts lworkers	ed upon com rmine cost	upleted syst driving fac efflected in Curve Linear	ems. The tors, and the new	original difficult baseline d Ouantity 818.41 H	Daseline y of account units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 750 S Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours TIME BASE Hours	r, a dedvantags of th	D&D SKI 2.23 RADIATI 2.23 D&D HA 2.23	analysis e actual lyses ha Skill ILLED TRA Difficulty Difficulty Z REDUC Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor	costs and parison, 1 lied to the KC10	0.5 0.5 1 771 C 0.5 0.5 0.5 1 771 C	by labor wasion analysaining liques of the complex Steel Headcou Complex Steel Headcou Complex Steel Headcou	was conduct sis to dete sis to dete sid system ment lworkers unt Cuts lworkers unt Cuts	ed upon com rmine cost	ppleted syst driving fac eflected in Curve Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H	Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 750 S Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours	r, a dedvantags of th	D&D SKI 2.23 RADIATI 2.23 D&D HA 2.23 D&D SKI	analysis e actual lyses ha Skill ILLED TRA Difficulty Difficulty Z REDUC Difficulty LLED TRA	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES	costs and parison, 1 lied to the KC10	0.5 0.5 1 771 C 0.5 0.5 0.5 1 771 C	by labor wasion analysaining liques because the beauton by labor wasion analysaining liques beauton beauton by labor wasion analysis and beauton by labor wasion analysis and beauton by labor wasion	was conduct sis to dete sis to dete sid system ment lworkers unt Cuts lworkers unt Cuts	ed upon com rmine cost	upleted syst driving fac efflected in Curve Linear	ems. The tors, and the new	original difficult baseline d Ouantity 818.41 H	Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 750 S Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours TIME BASE Hours	r, a dedvantags of th	D&D SKI 2.23 RADIATI 2.23 D&D HA 2.23	analysis e actual lyses ha Skill ILLED TRA Difficulty Difficulty Z REDUC Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES	costs and parison, 1 lied to the KC10	0.5 0.5 1 771 C 0.5 0.5 0.5 1 771 C	by labor wasion analysaining liques of the complex Steel Headcou Complex Steel Headcou Complex Steel Headcou	was conduct sis to dete sis to dete sid system ment lworkers unt Cuts lworkers unt Cuts	ed upon com rmine cost	ppleted syst driving fac eflected in Curve Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H	Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours	r, a dedvantags of th	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23	skill Skill ILLED TRA Difficulty ON CONT Difficulty Z REDUC Difficulty LLED TRA Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor	costs and parison, 1 lied to the KC10l	times regress are remainded in the remai	Departs Depart	was conducts is to determine to the conduct system to the conduct	ed upon com rmine cost	ppleted syst driving fac eflected in Curve Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H	Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 750 S Factors 751 O Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 DVERTIME 130	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours	r, a dedvantags of th	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23	skill Skill ILLED TRA Difficulty ON CONT Difficulty Z REDUC Difficulty LLED TRA Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES	costs and parison, 1 lied to the KC10l	times regress are remainded in the remai	Departs Depart	was conducts is to determine to the conduct system to the conduct	ed upon com rmine cost	ppleted syst driving fac eflected in Curve Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H	Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 750 S Factors 751 O Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 DVERTIME 130 DVERTIME	During the last yean modified to take a systems. The result in the resul	r, a dedvantags of th	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23	skill Skill ILLED TRA Difficulty ON CONT Difficulty Z REDUC Difficulty LLED TRA Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO ROL TECHNO	costs and parison, 1 lied to the KC10l	times regress are remainded in the remai	Departs Depart	was conducts is to determine to the conduct system to the conduct	ed upon com rmine cost	ppleted syst driving fac efflected in Curve Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H	Units ours ours
	two year liquids to the v presente s	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 DVERTIME 130 DVERTIME	During the last yean modified to take a systems. The result in the resul	r, a dedvantags of th	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23	skill Skill ILLED TRA Difficulty Difficulty Z REDUC Difficulty LLED TRA Difficulty Difficulty LLED TRA Difficulty DIFFICULT DIFFIC	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO ROL TECHNO	costs and parison, 1 lied to the KC10l	times regress are remainded in the remai	Departs Depart	was conducts is to determine to the conduct sis to determine to the conduct system to th	ed upon com rmine cost	ppleted syst driving fac efflected in Curve Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H	Units ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O Factors 751 O Factors	has been various sed herein Cos TRAIGHT 1 286 TRAIGHT 1 306 DVERTIME 1 50	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours BASE & PRE. Hours BASE & PRE. Hours BASE & PRE. Hours	r, a dedvantags of th	D&D SKI 2.23 RADIATI 2.23 D&D SKI 2.23 D&D HA 2.23 RADIATI 2.23	Skill ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ILLED TRA Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO ROL TECHNO	costs and parison, 1 lied to the KC101 KC1	times regress le remaind H	by labor was ion analystic aining lique Departm Complex Steel Headcou Complex Steel Head	was conducts is to determine to the conduct sis to determine to the conduct system to th	ed upon com rmine cost	ppleted syst driving fac efflected in Curve Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H	Units Ours Ours Ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O Factors 751 O Factors	rs ago. has been various s ed herein Cos TRAIGHT 1 286 TRAIGHT 1 306 ETRAIGHT 1 306 ETRAIGHT 1 306 ETRAIGHT 1 50 ETRAIGH	During the last yean modified to take a systems. The result in the resul	r, a dedvantags of th	D&D SKI 2.23 RADIATI 2.23 D&D SKI 2.23 D&D HA 2.23 RADIATI 2.23 RADIATI 2.23 D&D SKI 2.23 RADIATI 2.23	Skill ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ILLED TRA Difficulty	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor	costs and parison, 1 lied to the KC101 KC1	times regress le remaind H	by labor was ion analystic aining lique Departm Complex Steel Headcou Complex Steel Head	was conducts is to determine to the conduct sis to determine to the conduct system to th	ed upon com rmine cost	ppleted syst driving fac efflected in Curve Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H 144.95 H	Units Ours Ours Ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 EXECUTE 130 EX	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours BASE & PRE.	r, a dedvantags of th	D&D SKI 2.23 RADIATI 2.23 D&D SKI 2.23 D&D HA 2.23 RADIATI 2.23	Skill ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA DIFFICULTY	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor	costs and parison, 1 lied to the KC101 KC1	1 771 C 0.5 1 771 C	by labor was an alys aining lique Departs Complex Steel Headcou Complex Steel Complex St	was conducts is to determine to determine the conduct system the condu	ed upon com rmine cost	ppleted syst driving fac efflected in Curve Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H 144.95 H	Units Ours Ours Ours
	two year liquids to the v presente ractors 750 ST Factors 750 ST Factors 751 O' Factors 751 O' Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 VERTIME 130 VERTIME 50 VERTIME 52	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours BASE & PRE.	r, a de dvantag s of th C120 T050 T060 T060	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficults ION CONT Difficults ILLED TRA Difficults ICN CONT Difficults	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor TECHNO / Factor	costs and parison, 1 lied to the KC10l KC1	1 771 C 0.5 1 771 C	by labor was ion analys aining lique Departs Complex Steel Headcou	was conduct sis to dete sis to det sis to de sis t	ed upon com rmine cost	pleted syst driving fac eflected in Curve Linear Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H 144.95 H 55.75 H	Units ours ours ours ours
	two year liquids to the v presente year sectors 750 ST Factors 750 ST Factors 751 OT Factors 751 OT Factors 751 OT Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 VERTIME 130 VERTIME 50 VERTIME 52 ATA	During the last yean modified to take a systems. The result in the resul	r, a dedvantags of th	D&D SKI 2.23 D&D HA 2.23	Skill ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA Difficulty Z REDUC Difficulty ILLED TRA DIFFICULTY DIFFICULTY ILLED TRA DIFFICULTY DIFFICULTY ILLED TRA DIFFICULTY DIFFICULTY ILLED TRA DIFFICULTY ILLED TRA DIFFICULTY	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor TECH / RISK F / Factor	costs and parison, 1 lied to the KC10l KC1	1 771 C 0.5 1 771 C	by labor was ion analys aining lique Departs Complex Steel Headcou ing 771 Closuring T71 Closuring	was conduct sis to dete sis to det sis to de sis to d	ed upon com rmine cost	ppleted syst driving fac efflected in Curve Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H 144.95 H	baseline y of acc ata Units ours ours ours ours
	two year liquids to the v presente ractors 750 ST Factors 750 ST Factors 751 O' Factors 751 O' Factors	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 286 TRAIGHT 306 VERTIME 130 VERTIME 50 VERTIME 52 ATA	During the last yean modified to take a systems. The result it. St Element TIME BASE Hours TIME BASE Hours BASE & PRE.	r, a de dvantag s of th C120 T050 T060 T060	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23	analysis e actual lyses ha Skill ILLED TRA Difficults ION CONT Difficults ILLED TRA Difficults ICN CONT Difficults	of actual charge com we been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor TECH / RISK F / Factor	costs and parison, 1 lied to the KC10l KC1	1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.24 1 771 C 0.5 2 C 0.5 1 771 C 0.24 3 Buildi 2.23	by labor was ion analys aining liques and the same series of the same	was conducts to determine to de	ed upon com rmine cost	pleted syst driving fac eflected in Curve Linear Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H 144.95 H 55.75 H	baseline y of acc ata Units ours ours ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O F	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 306 TRAIGHT 306 DVERTIME 50 DVERTIME 50 DVERTIME 52 ATA 124	During the last yean modified to take a systems. The result in the resul	r, a dedvantags of the C120 T050 T060 T060 T060 T060	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23 D&D HA 2.23 D&D HA 2.23 D&D HA 2.23 D&D HA 2.23	Skill ILLED TRA Difficulty ION CONT Difficulty ILLED TRA Difficulty ION CONT Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ION CONT DIFICULTY ION	of actual charge com ve been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor	costs and parison, 1 lied to the KC10l KC1	1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.24 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 0.5 1 771 C 0.5 0.5 1 771 C 0.5 0.5 0.5 1 771 C 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	by labor was ion analystic and analystic and analystic analystic and analystic analyst	was conducts to determine to de	ed upon com rmine cost	pleted syst driving fac effected in Curve Linear Linear Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 163.77 H 144.95 H 27.83 H	baseline y of acc ata Units ours ours ours ours ours
	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O F	has been various sed herein Cos TRAIGHT 286 TRAIGHT 306 VERTIME 50 VERTIME 52 ATA 124 UBCONTR	During the last yean modified to take a systems. The result in the resul	r, a de dvantag s of th C120 T050 T060 T060	D&D SKI 2.23 RADIATI 2.23 D&D SKI 2.23 D&D HA 2.23 RADIATI 2.23 D&D SKI 2.23 D&D HA 2.23 RADIATI 2.23 D&D THE	Skill ILLED TRA Difficulty ION CONT Difficulty ILLED TRA DIFFICULTY DIFFICULTY ILLED TRA DIFFICULTY ILLED TRA DIFFICULTY ILLED TRA DIFFICULTY ILLED TRA DIFFICULTY INCONT DIFFICULTY DIFFICULTY INCONT DIFFICULTY DIFFICULTY INCONT DIFFICULTY DIFF	of actual charge com ve been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor ROL TECHNO / Factor SINEERS Der hr	costs and parison, 1 lied to the KC10l KC1	1 771 C	by labor was ion analys aining liques and the second complex Steel Headcou Difficulty Headcou in 771 Closur Difficulty Headcou in 771 Closur i	was conducts to determine to de	ed upon com rmine cost	pleted syst driving fac eflected in Curve Linear Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 318.89 H 163.77 H 144.95 H 55.75 H	baseline y of acc ata Units ours ours ours ours ours
BOE	two year liquids to the v presente s 750 S Factors 750 S Factors 751 O F	rs ago. has been various s ed herein Cos TRAIGHT 734 TRAIGHT 306 TRAIGHT 306 DVERTIME 50 DVERTIME 50 DVERTIME 52 ATA 124 UBCONTR	During the last yean modified to take a systems. The result in the resul	r, a dedvantags of the C120 T050 T060 T060 T060 T060	D&D SKI 2.23 D&D HA 2.23 D&D SKI 2.23 D&D HA 2.23 D&D HA 2.23 D&D HA 2.23 D&D HA 2.23	Skill ILLED TRA Difficulty ION CONT Difficulty ILLED TRA Difficulty ION CONT Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ILLED TRA Difficulty ION CONT DIFICULTY ION	of actual charge com ve been app DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor DES / Factor ROL TECHNO / Factor TECH / RISK F / Factor ROL TECHNO / Factor SINEERS Der hr	costs and parison, 1 lied to the KC10l KC1	1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.24 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 1 771 C 0.5 0.5 1 771 C 0.5 0.5 1 771 C 0.5 0.5 0.5 1 771 C 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	by labor was ion analystic and analystic and analystic analystic and analystic analyst	was conducts to determine to de	ed upon com rmine cost	pleted syst driving fac effected in Curve Linear Linear Linear Linear Linear Linear	ems. The tors, and the new	Original difficult baseline d Ouantity 818.41 H 163.77 H 144.95 H 27.83 H	Units ours ours ours ours ours

BOE

Page 47 of 85 6/22/00 8:44:04 PM *OFFICIAL USE ONLY*

WBS No: 1CAC39
Activity ID: 1CAC71393

Rockv Flats Closure Project
Baseline Cost and Basis of Estimate

0000 NONE

Factors 1293.18 Dollars

ESC ESCALATION

WBS No: 1CAC	40 Title: Sys 40 - Process Steam Co	ondensate										
Activity ID: 1CA	C71401 Description: Plan/Eng prep to drain Sys.4	0, Proc Str	n Condens8					Cost Risk	1 Schedule R	Pisk 1		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	22.284	153.256
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	8.125	8.125	0	8.125
	Tot	al for Activi	tv 1CAC7140	01:		1.729	46.717	84.255	8.125	139.097	22.284	161.381

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

ZDEPT No Department

Resources

Cost Element	Skill	Department	Curve	Ouantity Units
750 STRAIGHT TIME BASE	E050 ENVIRONMENTAL ENGINEERS	K281S Building 771 Closure Project	Linear	110.00 Hours
Factors 110 Hours	1 Difficulty Factor			<u>, </u>
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Project	Linear	52.00 Hours
Factors 52 Hours	1 Difficulty Factor			<u>, </u>
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	K281S Building 771 Closure Project	Linear	33.00 Hours
Factors 33 Hours	1 Difficulty Factor			<u>, </u>
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	406.00 Hours
Factors 406 Hours	1 Difficulty Factor			<u>, </u>
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	K281S Building 771 Closure Project	Linear	8.00 Hours
Factors 8 Hours	1 Difficulty Factor			<u>, </u>
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	K281S Building 771 Closure Project	Linear	65.00 Hours
Factors 65 Hours	1 Difficulty Factor			<u>, </u>
750 STRAIGHT TIME BASE	P150 TRAINERS	K281S Building 771 Closure Project	Linear	27.00 Hours
Factors 27 Hours	1 Difficulty Factor			
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	K281S Building 771 Closure Project	Linear	1.00 Hours
Factors 1 Hours	1 Difficulty Factor			<u> </u>
750 STRAIGHT TIME BASE	S010 CHEMISTS	S100S SSOC Salaried	Linear	3.00 Hours
Factors 3 Hours	1 Difficulty Factor			<u> </u>
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	286.00 Hours
Factors 286 Hours	1 Difficulty Factor			<u> </u>
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	600.00 Hours
Factors 600 Hours	1 Difficulty Factor			<u> </u>
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	50.00 Hours
Factors 50 Hours	1 Difficulty Factor			<u> </u>
751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	88.00 Hours
Factors 88 Hours	1 Difficulty Factor			<u> </u>
A52 TENERA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	27.525.00 Dollars
Factors 367 Hours	75 Dollars per hr	1 Difficulty Factor		
A52 TENERA	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	6.225.00 Dollars
Factors 83 Hours	75 Dollars per hr	1 Difficulty Factor		
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	K281S Building 771 Closure Project	Linear	11.175.00 Dollars
Factors 149 Hours	75 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Project	Linear	14.580.00 Dollars
Factors 162 Hours	90 Dollars per hr	1 Difficulty Factor		

Page 48 of 85 6/22/00 8:44:04 PM *OFFICIAL USE ONLY*

Baseline Devl

Linear

1.293.18 Dollars

1CAC

Proiect

WBS Filter

WBS No: 1CAC40 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71401 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** <u>Activi</u>ty Filter Starts In FY A5H SUBCONTRACTED SRVS P070 COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project 11.250.00 Dollars Linear 150 Hours Dollars per hr Difficulty Factor A5H SUBCONTRACTED SRVS HEALTH PHYSICISTS 13.500.00 Dollars P080 K281S Building 771 Closure Project Linear Difficulty Factor 180 Hours 75 Dollars per hr Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Units Curve CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 4.902.35 Dollars 4902.35 Dollars ESC ESCALATION 3.222.64 Dollars 0000 NONE ZDEPT No Department Linear Factors 3222.64 Dollars Activity ID: 1CAC71402 Description: Tap & drain Sys. 40, Process Steam Condensate Cost Risk 4 Schedule Risk Line Item Description Quantity Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Type Hours/Unit Total Total Cost & Escalation Cost Tap & Drain 1.00 each EE 985 985 20.961 7.124 0 28.086 9.999 38.084 SYS Contingency And Escalation 1.00 ea FF n Λ 2.074 2.074 Λ 2.074 Total for Activity 1CAC71402: 985 20.961 7.124 2.074 30.160 9.999 40.158 Line Item 2 - Tap & Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Resources Cost Element Skill Department Curve **Ouantity** Units C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 34.62 Hours 750 STRAIGHT TIME BASE Linear Hours 1.61 Difficulty Factor **Factors** Headcount Cuts 750 STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 284.97 Hours Linear 354 Difficulty Factor Factors Hours 1.61 Headcount Cuts 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 517.78 Hours 1340 Hours 1 61 Difficulty Factor Factors Headcount Cuts 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 91 19 Hours Linear Factors 236 Hours 1 61 Difficulty Factor Headcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 6 44 Hours Difficulty Factor Factors R Hours 1.61 Headcount Cuts RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 49.91 Hours 751 OVERTIME BASE & PRE T050 Linear **Factors** 62 Hours 1.61 Difficulty Factor Headcount Cuts 7.124.25 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear **Factors** 118 Hours Dollars per Hr 1.61 Difficulty Factor 0.5 Headcount Cuts Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve Units CON CONTINGENCY 0000 NONE ZDEPT No Department 1 273 22 Dollars Linear 1273.22 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 800.82 Dollars 800.822 Dollars Factors

WBS No: 1CAC40 Activity ID: 1CAC71403

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect E WBS Filter

Baseline Devl 1CAC

Activity Filter * Starts In FY

Activity ID: 1CA	Description: Remove proc. piping, Sys.40		Cost Risk	4 Schedule R	isk 3							
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
3	PPR	1.00	each	EE	1.104	1.104	24.911	7.607	0	32.518	10.264	42.782
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	4.329	4.329	0	4.329
	Tot	al for Activ	ity 1CAC714	03:		1.104	24.911	7.607	4.329	36.847	10.264	47.112
11												

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es		C	ost Element			Skill			Department	Curv	ve Ouar	ıtity	Units
L	750	STRAIGHT	TTIME BASE	C120	D&D SKIL	LED TRADES	KC10H	771 Con	nplex Steelworkers	Linea	ar	590.87 Ho	ours
	Factors	734	Hours		1.61	Difficulty Factor							
r								0.5	Headcount Cuts				
L	750	STRAIGHT	TTIME BASE	T050	RADIATIO	N CONTROL TECHNOLIGI	KC10H	771 Con	nplex Steelworkers	Linea	ar	230.23 H	ours
	Factors	286	Hours		1.61	Difficulty Factor							
Г		1						0.5	Headcount Cuts	1			
L	750	STRAIGHT	TTIME BASE	T060	D&D HAZ	REDUC TECH / RISK RED	KC10H	771 Con	nplex Steelworkers	Linea	ar	118.24 H	ours
	Factors	306	Hours		1.61	Difficulty Factor							
Iff		_			1			0.24	Headcount Cuts				
L	751	OVERTIM	E BASE & PRE.	C120	D&D SKIL	LED TRADES	KC10H	771 Con	nplex Steelworkers	Linea	ar	104.65 H	ours
	Factors	130	Hours		1.61	Difficulty Factor							
ı								0.5	Headcount Cuts				
L	751		E BASE & PRE.	T050		N CONTROL TECHNOLIGI	KC10H	771 Con	plex Steelworkers	Linea	ar	40.25 H	ours
	Factors	50	Hours		1.61	Difficulty Factor							
Г		1			ı			0.5	Headcount Cuts				
L	751		E BASE & PRE.	T060		REDUC TECH / RISK RED	KC10H	771 Con	nplex Steelworkers	Linea	ar	20.09H	ours
	Factors	52	Hours		1.61	Difficulty Factor							
Г								0.24	Headcount Cuts				
L	A57	LATA		E070		CAL ENGINEERS	K281S		771 Closure Proiect	Linea	ar 7.	486.50 Do	ollars
	Factors	124	Hours		75	Dollars per hr		1.61	Difficulty Factor				
Г		01100011		- 400	071150 5		1/00/0	0.5	Headcount Cuts				
L	_	SUBCONT	RACTED SRVS	E130	-	NGINEERS	K281S		771 Closure Proiect	Linea	ar	120.75 Do	ollars
	Factors	2	Hours		75	Dollars per hr		1.61	Difficulty Factor				
								0.5	Headcount Cuts				

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	2.873.46	Dollars
	Factors	2873.46 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	1.455.83	Dollars

Factors 1455.83 Dollars

WBS No: 1CAC4	1 Sys 41 - Process Water											
Activity ID: 1CAC	Description: Plan/Eng prep to drain Sys. 4	11, Process				Cost Risk	1 Schedule R	risk 1				
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	22.284	153.256
SYS	Contingency And Escalation	1.00 ea EE		EE	0	0	0	0	8,125	8,125	0	8,125
	Tota	al for Activity	/ 1CAC7141	1:		1,729	46,717	84,255	8,125	139,097	22,284	161,381

WBS No: 1CAC41
Activity ID: 1CAC71411

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC Activity Filter *

Starts In FY

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Cost Element Units Resources Department Curve Quantity K281S Building 771 Closure Project 750 STRAIGHT TIME BASE E050 ENVIRONMENTAL ENGINEERS Linear 110.00 Hours Difficulty Factor 110 Hours STRAIGHT TIME BASE NUCLEAR (CRITICALITY) ENGINEER | K281S | Building 771 Closure Project 52.00 Hours 750 E080 Linear 52 Hours Difficulty Factor Factors 750 STRAIGHT TIME BASE E120 SAFETY ENGINEERS K281S Building 771 Closure Project Linear 33.00 Hours 33 Hours Difficulty Factor 750 STRAIGHT TIME BASE E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 406.00 Hours 406 Hours Difficulty Factor 750 STRAIGHT TIME BASE MANAGERS (GRADE 69 - 72) K281S Building 771 Closure Project Linear 8.00 Hours 8 Hours Difficulty Factor Factors 750 STRAIGHT TIME BASE INDUSTRIAL HYGIENISTS K281S Building 771 Closure Project Linear 65.00 Hours 65 Hours Difficulty Factor Factors 27.00 Hours 750 STRAIGHT TIME BASE P150 TRAINERS K281S Building 771 Closure Project Linear Difficulty Factor Factors 27 Hours 1.00 Hours 750 STRAIGHT TIME BASE P170 OTHER ADMINISTRATIVE & PROFE K281S Building 771 Closure Project Linear Hours Difficulty Factor S100S SSOC Salaried 3.00 Hours 750 STRAIGHT TIME BASE S010 CHEMISTS Linear Hours Difficulty Factor 750 STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 286.00 Hours Linear 286 Hours Difficulty Factor Factors 750 STRAIGHT TIME BASE D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers Linear 600.00 Hours Factors 5 Difficulty Factor 600 Hours 751 OVERTIME BASE & PRE RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 50.00 Hours T050 Linear 50 Hours Difficulty Factor Factors 751 OVERTIME BASE & PRE D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 88.00 Hours Linear Factors 88 Hours Difficulty Factor MECHANICAL ENGINEERS K281S Building 771 Closure Project 27 525 00 Dollars A52 TENERA Linear Dollars per hr Difficulty Factor Factors 367 Hours A52 TENERA OTHER ENGINEERS K281S Building 771 Closure Project Linear 6.225.00 Dollars Factors 83 Hours Dollars per hr Difficulty Factor A57 LATA TECHNICAL WRITERS AND EDITOR | K281S | Building 771 Closure Project 11.175.00 Dollars Linear 149 Hours Dollars per hr Difficulty Factor Factors A5H SUBCONTRACTED SRVS 14.580.00 Dollars E080 NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project Linear 162 Hours Dollars per hr Difficulty Factor P070 COST ESTIMATORS PLANNERS AN | K281S | Building 771 Closure Project 11.250.00 Dollars A5H SUBCONTRACTED SRVS Linear Factors 150 Hours 75 Dollars per hr Difficulty Factor

Line Item SYS - Contingency And Escalation

180

Factors

BOE

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	4.902.35	Dollars
	Factors	4902.35 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3,222.64	Dollars

K281S Building 771 Closure Project

Difficulty Factor

Factors 3222.64 Dollars

A5H SUBCONTRACTED SRVS

Hours

P080

HEALTH PHYSICISTS

Dollars per hr

75

Activity ID: 1CAC71412 Description: Tap & drain System 41, Process Water Cost Risk 4 Schedule Risk 3

Linear

13.500.00 Dollars

WBS No: 1CAC41 *Activity ID:* 1CAC71412

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Baseline Devl 1CAC

				Acti	ivitv Filter *		Starts In FY *					
Line Item	Description	1						Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	1.00 each		1.034	1.034	22.003	7.478	0	29.481	10.495	39.976
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	2.177	2.177	0	2.177
	Total for Activity 1CAC71412:							7.478	2.177	31.658	10.495	42.154
11. 14 O T	0.00											

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

es	Cost Element	Skill	Department	Curve	Ouantity Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KC10H 771 Complex Steelworkers	Linear	36.34 Hours
Factors	43 Hours	1.69 Difficulty Factor			
			0.5 Headcount Cuts		
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLI	GI KC10H 771 Complex Steelworkers	Linear	299.13 Hours
Factors	354 Hours	1.69 Difficulty Factor			
			0.5 Headcount Cuts		
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RE	D KC10H 771 Complex Steelworkers	Linear	95.72 Hours
Factors	236 Hours	1.69 Difficulty Factor			
_			0.24 Headcount Cuts		
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RE	D KC10H 771 Complex Steelworkers	Linear	543.50 Hours
Factors	1340 Hours	1.69 Difficulty Factor			
			0.24 Headcount Cuts		
751	OVERTIME BASE & PRE.	C120 D&D SKILLED TRADES	KC10H 771 Complex Steelworkers	Linear	6.76 Hours
Factors	8 Hours	1.69 Difficulty Factor			
			0.5 Headcount Cuts		
751	OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLI	GI KC10H 771 Complex Steelworkers	Linear	52.39 Hours
Factors	62 Hours	1.69 Difficulty Factor			
_			0.5 Headcount Cuts		
A5H	SUBCONTRACTED SRVS	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	7.478.25 Dollars
Factors	118 Hours	75 Dollars per Hr	1.69 Difficulty Factor		
			0.5 Headcount Cuts		

Line Item SYS - Contingency And Escalation

BOE

Resources

ces		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	1.336.48	Dollars
	Factors	1336.48 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	840.61	Dollars

Factors 840.615 Dollars

Activity ID: 1CAC71413 Description: Remove proc. piping, Sys. 41, Process Water

Cost Risk 4 Schedule Risk

3

	Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
L					Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
	3	PPR	1.00	each	EE	1.159	1.159	26.149	7.985	0	34.134	12.473	46.607
	SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	2.538	2.538	0	2.538
		Tota	al for Activit	ty 1CAC714	13:		1.159	26.149	7.985	2.538	36.672	12.473	49.145

Line Item 3 - PPR

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources	Cost Element	Skill	Department	Curve	Quantity Units	

WBS No: 1CAC41 Baseline Devl Proiect Rocky Flats Closure Project 1CAC71413 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 620.23 Hours Factors Hours Difficulty Factor Headcount Cuts 750 T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 241.67 Hours STRAIGHT TIME BASE Linear 286 1.69 Difficulty Factor Factors Hours Headcount Cuts T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 124.11 Hours STRAIGHT TIME BASE Linear 306 Hours 1.69 Difficulty Factor **Factors** Headcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 109.85 Hours 130 1.69 Difficulty Factor **Factors** Hours Headcount Cuts KC10H 771 Complex Steelworkers 42.25 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI Linear Factors Difficulty Factor Hours Headcount Cuts 751 OVERTIME BASE & PRE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 21.09 Hours Factors 52 Hours Difficulty Factor Headcount Cuts 7.858.50 Dollars A57 LATA E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear Dollars per hr Difficulty Factor Factors 124 Hours 75 1.69 0.5 Headcount Cuts 126.75 Dollars A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 75 Difficulty Factor Factors 2 Hours Dollars per hr 1.69 0.5 Headcount Cuts Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Units Curve CON CONTINGENCY 0000 NONE ZDEPT No Department 1.558.14 Dollars Linear Factors 1558.14 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 980.03 Dollars Linear 980.034 Dollars WBS No: 1CAC42 Svs 42 - Process Cool Wtr Spply & Retur Activity ID: 1CAC71421 Description: Plan/Eng prep to drain Sys 42 Process Cool'g H2O Cost Risk 1 Schedule Risk Labor Total Prime Line Item Description Quantity BOELabor Hours Labor Cost Materials/ Sub Contingency Burden Cost Total Cost TypeHours/Unit **Total** Cost & Escalation Cost FF 1.729 1.729 46.717 84.255 130.972 22.284 153.256 Planning & Engineering Prep to Drain 1.00 each 0 FF SYS Contingency And Escalation 1.00 ea 0 0 8.125 8.125 0 8.125 Total for Activity 1CAC71421: 1.729 46.717 84.255 8.125 139.097 22.284 161.381 Line Item 1 - Planning & Engineering Prep to Drain The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately BOE two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein. Skill Units Cost Element Department Curve Quantity Resources 750 STRAIGHT TIME BASE E050 ENVIRONMENTAL ENGINEERS K281S Building 771 Closure Project Linear 110.00 Hours 110 Difficulty Factor Factors Hours 750 STRAIGHT TIME BASE NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project 52.00 Hours Linear Difficulty Factor 52 Hours Factors

K281S Building 771 Closure Project

K281S Building 771 Closure Project

750 STRAIGHT TIME BASE

750 STRAIGHT TIME BASE

Hours

Hours

33

406

Factors

Factors

E120 SAFETY ENGINEERS

OTHER ENGINEERS

E130

Difficulty Factor

Difficulty Factor

Page 53 of 85 6/22/00 8:44:06 PM *OFFICIAL USE ONLY*

Linear

Linear

33.00 Hours

406.00 Hours

WBS No: 1CAC42 *Activity ID:* 1CAC71421

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC

750				Starts In FY *
700	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72) K281S Building 771 Closure Project	Linear	8.00 Hours
Factors	8 Hours	1 Difficulty Factor		
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS K281S Building 771 Closure Project	Linear	65.00 Hours
Factors	65 Hours	1 Difficulty Factor		
750	STRAIGHT TIME BASE	P150 TRAINERS K281S Building 771 Closure Project	Linear	27.00 Hours
Factors	27 Hours	1 Difficulty Factor		
750	STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE K281S Building 771 Closure Project	Linear	1.00 Hours
Factors	1 Hours	1 Difficulty Factor		
750	STRAIGHT TIME BASE	S010 CHEMISTS S100S SSOC Salaried	Linear	3.00 Hours
Factors		1 Difficulty Factor		
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers	Linear	286.00 Hours
Factors		1 Difficulty Factor		
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers	Linear	600.00 Hours
Factors		1 Difficulty Factor		
751	OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers	Linear	50.00 Hours
Factors		1 Difficulty Factor		
751	OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers	Linear	88.00 Hours
Factors		1 Difficulty Factor		
A52	TENERA	E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project	Linear	27.525.00 Dollars
Factors		75 Dollars per hr 1 Difficulty Factor		
A52	TENERA	E130 OTHER ENGINEERS K281S Building 771 Closure Project	Linear	6.225.00 Dollars
Factors		75 Dollars per hr 1 Difficulty Factor		
A57	LATA	P160 TECHNICAL WRITERS AND EDITOR K281S Building 771 Closure Project	Linear	11,175.00 Dollars
Factors	1	75 Dollars per hr 1 Difficulty Factor		
A5H	SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project	Linear	14,580.00 Dollars
Factors	162 Hours	90 Dollars per hr 1 Difficulty Factor		
A5H	SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project	Linear	11,250.00 Dollars
Factors		75 Dollars per hr 1 Difficulty Factor		
A5H	SUBCONTRACTED SRVS	P080 HEALTH PHYSICISTS K281S Building 771 Closure Project	Linear	13,500.00 Dollars
Factors	180 Hours	75 Dollars per hr 1 Difficulty Factor		

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element	Skill			Department	Curve	Quantity	Units
Į	CON			ZDEPT	No Department	Linear	4.902.35	Dollars	
	Factors	4902.35 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3.222.64	Dollars

Factors 3222.64 Dollars

ACTIVITY ID: 1CA	C/1422 Description: Tap & drain System 42, Prod	cess Cooling Water						Cost Risk 4 Schedule Risk 3				
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	1.00 each EE 2.3			2.325	2.325	49.474	16.815	0	66.289	22.917	89.206	
SYS	2 Tap & Drain SYS Contingency And Escalation				0	0	0	0	5.532	5.532	0	5.532
	Tot	al for Activi	ty 1CAC714	22:		2.325	49.474	16.815	5.532	71.821	22.917	94.739

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

ces		Cost Element		Skill		Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	81.70	Hours

Factors 43 Hours 3.8 Difficulty Factor

0.5 Headcount Cuts

WBS No: Activity ID:	1CAC42 1CAC71422			Closure Proiec	W/DC Eilter		Starts In FY *
	750 STRAIGHT TIME BASE	T050 RADIAT	ION CONTROL TECHNOLIGI	KC10H 771 Comple		Linear	672.60 Hours
	Factors 354 Hours	3.8	Difficulty Factor			•	
		T			eadcount Cuts		
	750 STRAIGHT TIME BASE Factors 236 Hours	T060 D&D HA 3.8	AZ REDUC TECH / RISK RED Difficulty Factor	KC10H 771 Comple	ex Steelworkers	Linear	215.23 Hours
	Factors 236 Hours	3.0	Difficulty Factor	0.24 H	eadcount Cuts		
	750 STRAIGHT TIME BASE	T060 D&D HA	Z REDUC TECH / RISK RED			Linear	1.222.08 Hours
	Factors 1340 Hours	3.8	Difficulty Factor				
	754 OVEDTIME DAGE 0 DDE	0400 D0 D 04	WILED TO A DEO		eadcount Cuts	1.	45.00
	751 OVERTIME BASE & PRE. Factors 8 Hours	1 C120 ID&D SK 3.8	CILLED TRADES Difficulty Factor	KC10H 771 Comple	ex Steelworkers	Linear	15.20 Hours
	raciois 0 Hours	3.0	Difficulty Factor	0.5 H	eadcount Cuts		
	751 OVERTIME BASE & PRE.	T050 RADIAT	ION CONTROL TECHNOLIGI	KC10H 771 Comple	x Steelworkers	Linear	117.80 Hours
	Factors 62 Hours	3.8	Difficulty Factor				
	A5H SUBCONTRACTED SRVS	E070 MECHA	NICAL ENGINEERS	0.5 H	eadcount Cuts	Linear	16.815.00 Dollars
	Factors 118 Hours	75	Dollars per Hr		ifficulty Factor	Linear	16.815.00iDollars
	Tacions TTO Troute	7.0	Bollaro por Fil		eadcount Cuts		
Line Item SYS BOE	S - Contingency And Escalation						
Resources	Cost Element		Skill		Department	Curve	Ouantity Units
	CON CONTINGENCY	0000 NONE		ZDEPT No Departm	ent	Linear	3.417.38 Dollars
	Factors 3417.38 Dollars			75557 W 5			2 445 20 5 11
	ESC ESCALATION Factors 2115.00 Dollars	0000 NONE		ZDEPT No Departm	ent	Linear	2.115.00 Dollars
Activity ID:		proc. piping, Sys 4	2, Process Cool'g H2O		Cost I	Risk 4 Schedule Risk	3
Line Item			Quantity Units BOE Type	Labor Labor I Hours/Unit To		ials/Sub Contingency Total Cost & Escalation Co	Prime Burden Cost Total Cost
3	PPR		1.00 each EE		2.606 58.796		76.751 24.921 101.671
SYS	Contingency And Escalation		1.00 ea EE	0	0 0	0 9.348	9.348 0 9.348
Line Item 3 - I	nnn	To	otal for Activity 1CAC71423:		2.606 58.796	17.955 9.348	86.099 24.921 111.020
BOE	The original resources and skill qua	antities for t	he Liquids Systems in	Building 771 were	generated by the Lic	mids team headed by Mr	. Ray Boyle approximately
501	two years ago. During the last year liquids has been modified to take at to the various systems. The result presented herein.	dvantage of th	ne actual charge compar alyses have been applie	ison, regression a	analysis to determine	cost driving factors,	and difficulty of access
Resources		0.00 0.00	Skill		Department	Curve	Ouantity Units
	750 STRAIGHT TIME BASE Factors 734 Hours	1 C120 ID&D SK 3.8	AILLED TRADES Difficulty Factor	KC10H 771 Comple	ex Steelworkers	Linear	1.394.60 Hours
	ractors 734 Hours	3.0	Difficulty Factor	0.5 H	eadcount Cuts		
	750 STRAIGHT TIME BASE	T050 RADIAT	ION CONTROL TECHNOLIGI			Linear	543.40 Hours
	Factors 286 Hours	3.8	Difficulty Factor	0.5 H	eadcount Cuts		
	750 STRAIGHT TIME BASE		AZ REDUC TECH / RISK RED	KC10H 771 Comple	x Steelworkers	Linear	279.07 Hours
	Factors 306 Hours	3.8	Difficulty Factor	0.04			
	751 OVERTIME BASE & PRE.	C120 D&D SK	(ILLED TRADES	0.24 H KC10H 771 Comple	eadcount Cuts	Linear	247.00 Hours
	Factors 130 Hours	3.8	Difficulty Factor	- NOTOLI I// I COMBIE	N ORGENIONEIS	Lilledi	241.001110UIS
					eadcount Cuts		
	751 OVERTIME BASE & PRE.		TION CONTROL TECHNOLIGI	KC10H 771 Comple	ex Steelworkers	Linear	95.00 Hours
	Factors 50 Hours	3.8	Difficulty Factor	0.5			
				0.5 H	eadcount Cuts		

Page 55 of 85

6/22/00 8:44:06 PM

OFFICIAL USE ONLY

1CAC42 Baseline Devl Proiect **Rocky Flats Closure Project** 1CAC71423 1CAC WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 751 OVERTIME BASE & PRE. T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 47.42 Hours Linear Factors 52 Hours Difficulty Factor Headcount Cuts A57 LATA E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project 17.670.00 Dollars Linear 124 Hours 75 Dollars per hr 3.8 Difficulty Factor **Factors** Headcount Cuts 0.5 A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 285.00 Dollars Linear Factors 2 Hours 75 Dollars per hr 3.8 Difficulty Factor 0.5 Headcount Cuts Line Item SYS - Contingency And Escalation Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 6.136.04 Dollars 6136.04 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 3.212.03 Dollars

WBS No: 1CACS	70 Title: Sys 90 - Rm 212, 250-51, G	B 5 & 355,	T20									
Activity ID: 1CA	C74901 Description: Plan/Eng prep to drain Syste	m 90. Blda	774					Cost Risk	1 Schedule R	Pisk 1		
Line Item	Line Item Description			BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	22.284	153.256
SYS			1.00 ea EE		0	0	0	0	8.125	8.125	0	8.125
	Tota	al for Activit	ty 1CAC749	01:		1.729	46.717	84.255	8.125	139.097	22.284	161.381

Line Item 1 - Planning & Engineering Prep to Drain

3212.03 Dollars

Factors

BOE

WBS No:

Activity ID:

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

	Cost Element		Skill		Department	Curve	Ouantity Units
750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00 Hours
Factors	110 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00 Hours
Factors	52 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00 Hours
Factors	33 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00 Hours
Factors	406 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00 Hours
Factors	8 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00 Hours
Factors	65 Hours		1 Difficulty Factor		_		
750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00 Hours
Factors	27 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00 Hours
Factors	1 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00 Hours
Factors	3 Hours		1 Difficulty Factor				

Page 56 of 85 6/22/00 8:44:07 PM OFFICIAL USE ONLY WBS No: 1CAC90 1CAC74901 Activity ID:

Rocky Flats Closure Project **Baseline Cost and Basis of Estimate**

Baseline Devl Proiect 1CAC WBS Filter

Activity Filter Starts In FY T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 286.00 Hours Linear D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 600.00 Hours Linear RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 50.00 Hours D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 88.00 Hours Linear K281S Building 771 Closure Project 27.525.00 Dollars Linear Difficulty Factor 6.225.00 Dollars K281S Building 771 Closure Project Linear Difficulty Factor

3

11.175.00 Dollars A57 LATA P160 TECHNICAL WRITERS AND EDITOR K281S Building 771 Closure Project Linear 149 Hours 75 Dollars per hr Difficulty Factor Factors A5H SUBCONTRACTED SRVS E080 NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project Linear 14.580.00 Dollars Dollars per hr Difficulty Factor Factors 162 Hours A5H SUBCONTRACTED SRVS COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project Linear 11.250.00 Dollars

Difficulty Factor Factors 150 Hours Dollars per hr 13.500.00 Dollars A5H SUBCONTRACTED SRVS P080 HEALTH PHYSICISTS K281S Building 771 Closure Project Linear Factors 180 Dollars per hr Difficulty Factor

Line Item SYS - Contingency And Escalation

750 STRAIGHT TIME BASE

750 STRAIGHT TIME BASE

600 Hours 751 OVERTIME BASE & PRE

Hours

Hours

Hours

Hours

Hours

286

Factors 50 Hours 751 OVERTIME BASE & PRE

367

83

Factors 88

Factors A52 TENERA

Factors

A52 TENERA

BOE

Resources

es		Cost Element	Skill			Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	4.902.35	Dollars
	Factors	4902.35 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3.222.64	Dollars
	Factors	3222.64 Dollars							

Activity ID: 1CAC74902 Description: Tap & drain System 90. Cost Risk 4 Schedule Risk

Difficulty Factor

Difficulty Factor

Difficulty Factor

Difficulty Factor

Dollars per hr

Dollars per hr

MECHANICAL ENGINEERS

OTHER ENGINEERS

75

T060

E070

E130

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	1.829	1.829	38.553	9.912	0	48.465	18.390	66.855
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3.641	3.641	0	3.641
	Tot	ty 1CAC749	02:		1.829	38.553	9.912	3.641	52.106	18.390	70.496	

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

s		Cost Element		Skill			Department	Curve	<i>Ouantity</i>	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Cor	nplex Steelworkers	Linear	48.16	Hours
	Factors	43 Hours		1.12 Difficulty Factor						
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Cor	nplex Steelworkers	Linear	396.48	Hours
	Factors	354 Hours		1.12 Difficulty Factor						
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Cor	nplex Steelworkers	Linear	195.60	Hours
	Factors	236 Hours		1.12 Difficulty Factor						
						0.74	Heatcount Cuts			

Page 57 of 85 6/22/00 8:44:07 PM OFFICIAL USE ONLY WBS No: 1CAC90 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74902 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 1.110.59 Hours Linear Factors 1340 Hours 1.12 Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 8.96 Hours Linear 8 Hours 1.12 Difficulty Factor Factors 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 69.44 Hours Linear Factors 62 Hours Difficulty Factor 9.912.00 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear Dollars per Hr Difficulty Factor Factors 118 Hours 75 1.12 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 2.235.08 Dollars 0000 NONE ZDEPT No Department Linear Factors 2235.08 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 1.405.81 Dollars Linear Factors 1405.81 Dollars Activity ID: 1CAC74905 Description: Sludge removal - System 90 Cost Risk 5 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Ouantity** Hours/Unit Cost & Escalation Type Total Total Cost Svs 90 - Sludge Removal 1.00 each 2.396 2.396 55.040 55.040 20.834 Λ 75.874 SYS Contingency And Escalation 1.00 ea FF 0 10.062 10.062 0 10.062 Total for Activity 1CAC74905: 2.396 55.040 10.062 85.936 0 65.102 20.834 Line Item 5 - Sys 90 - Sludge Removal B774 Sludge Removal - For a 6 foot section (3 feet in each direction from the port). BOE 1. Planning - 1 "hot" IWCP per superset. (Separate from this estimate) 2. Erect Scaffold - 1 tube & knuckle scaffold per port. Crew-2 D&D Ops for 9 hours each; 1 RCT for 2.5 hours. 3. Set up equipment at each port. Crew 2 D&D Ops for 4.5 hours each 4. ASSUME containment is set up for size reduction, not part of this estimate. 5. Install access port near sludge line 3' diam. ? 9.5' of cutting @ 4" per minute ? 0.5 hours for cutting; bolt flange cover into place ? 1 hour. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 6. Examine tank interior; probe sludge below the port; assess adequacy of the work plan. Crew - 5 D&D Ops; 1 RCT; 1 Foreman. ? 0.5 hour. 7. Remove sludge from tank using a method to be determined after the results of tank sampling and characterization. Sludge will be extracted at an average rate of 6 gallons per hour. ? For TRU sludge the workers will be in SBA suits. Crew - 5 D&D Ops; 1 RCT; 1 Foreman ? For Low Level sludge, no breathing apparatus is required. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 8. Complete the same procedure (steps 5 through 7) for each port placed into the tank. 9. After all the sludge has been removed from the tank, insert a steam cleaning wand into each port and steam clean the tank walls. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 10. Vacuum all condensate and residue sludge out of the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 11. Close all access ports on the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 12. Clean up the area surrounding each port. . Crew - 2 D&D Ops; 1 RCT for 0.5 hours per port. 13. Remove the scaffold(s). (Removal is part of the scaffold set-up estimate.) A5C Procurement Procure hydrolasing rig (10,000 psi) @ \$100,000 each Procure High-power vacuum rig @ \$50,000 each. For superset 90 buy 1 of each For superset 91 buy 1 of each

For superset 95 buy 3 of each

Page 58 of 85 6/22/00 8:44:07 PM *OFFICIAL USE ONLY*

WBS No: 1CAC90 Baseline Devl Proiect **Rocky Flats Closure Project** 1CAC74905 WBS Filter 1CAC Activity ID: **Baseline Cost and Basis of Estimate** Activity Filter Cost Element Skill Resources Department Curve C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 1.650.00 Hours 1650 Hours T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 315.00 Hours 750 STRAIGHT TIME BASE Linear 315 Hours 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 362.00 Hours Linear Factors 362 Hours T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 69.00 Hours 751 OVERTIME BASE & PRE Linear Factors 69 Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 6.946.24 Dollars 6946.24 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 3.115.50 Dollars

Fac	tors 3115.5 Dollars											
WBS No: 1CAC	91											
Activity ID: 1CA	C74911 Description: Plan/Eng prep to drain Sys. 9	91						Cost Risk	1 Schedule R	risk 1		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1,729	46.717	84.255	0	130.972	22.284	153.256
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	8.125	8.125	0	8.125
	Tot	al for Activi	tv 1CAC7491	1:		1.729	46.717	84.255	8.125	139.097	22.284	161.381

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

	racion ccam.							
es	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00	Hours
Factors	110 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00	Hours
Factors	s 52 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00	Hours
Factors	y 33 Hours	ı	1 Difficulty Factor		T.	T.		
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00	Hours
Factors	y 406 Hours	ı	1 Difficulty Factor		T.	T.		
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00	Hours
Factors	s 8 Hours		1 Difficulty Factor		Т	1		
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00	Hours
Factors	5 65 Hours		1 Difficulty Factor		Т	1		
750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00	Hours
Factors	y 27 Hours		1 Difficulty Factor		Т	1		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00	Hours
Factors			1 Difficulty Factor		T	T		
750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00	Hours
Factors	s 3 Hours		1 Difficulty Factor					

Page 59 of 85 6/22/00 8:44:07 PM OFFICIAL USE ONLY WBS No: 1CAC91 1CAC74911 Activity ID:

Rocky Flats Closure Project

Baseline Devl Proiect 1CAC WBS Filter

10/10/10/1	Baseline Cost	and Basis of Estimate	vity Filter *	Starts In FY *
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIG	I KC10H 771 Complex Steelworkers	Linear	286.00 Hours
Factors 286 Hours	1 Difficulty Factor			
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	600.00 Hours
Factors 600 Hours	1 Difficulty Factor			
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIC	I KC10H 771 Complex Steelworkers	Linear	50.00 Hours
Factors 50 Hours	1 Difficulty Factor			
751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	88.00lHours
Factors 88 Hours	1 Difficulty Factor			
A52 TENERA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	27.525.00 Dollars
Factors 367 Hours	75 Dollars per hr	1 Difficulty Factor		
A52 TENERA	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	6.225.00lDollars
Factors 83 Hours	75 Dollars per hr	1 Difficulty Factor		
A57 LATA	P160 TECHNICAL WRITERS AND EDITO		Linear	11.175.00lDollars
Factors 149 Hours	75 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	L E080 INUCLEAR (CRITICALITY) ENGINEE		Linear	14.580.00 Dollars
Factors 162 Hours	90 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN		Linear	11.250.00 Dollars
Factors 150 Hours	75 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	P080 HEALTH PHYSICISTS	K281S Building 771 Closure Project	Linear	13.500.00 Dollars
Factors 180 Hours	75 Dollars per hr	 Difficulty Factor 		

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	<i>Ouantity</i>	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	4.902.35	Dollars
	Factors	4902.35 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3.222.64	Dollars
	Factors	3222.64 Dollars							

Activity ID: 1CAC74912 Description: Tap & drain System 91, Cost Risk

Activity ID: 1CA	C74912 Description: Tap & drain System 91,							Cost Risk	4 Schedule F	risk 3		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00 6	each	EE	1.437	1.437	30.292	7.788	0	38.080	14.449	52.529
SYS	Contingency And Escalation	1.00 €	ea	EE	0	0	0	0	2.861	2.861	0	2.861
	Tot	al for Activity	v 1CAC7491	12:		1.437	30.292	7.788	2.861	40.941	14.449	55.390

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

s		Cost Element		Skill			Department	Curve	Ouantity	Units
Į	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Com	plex Steelworkers	Linear	37.84	Hours
e	Factors	43 Hours		0.88 Difficulty Factor						
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	plex Steelworkers	Linear	311.52	Hours
_	Factors	354 Hours		0.88 Difficulty Factor						
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	plex Steelworkers	Linear	872.61	Hours
	Factors	1340 Hours		0.88 Difficulty Factor						
						0.74	Heatcount Cute			

Page 60 of 85 6/22/00 8:44:08 PM OFFICIAL USE ONLY WBS No: 1CAC91 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74912 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 153.68 Hours Linear Factors 236 Hours Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 7.04 Hours Linear 8 Hours 0.88 Difficulty Factor Factors 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 54.56 Hours Linear Factors 62 Hours Difficulty Factor 7.788.00 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear Dollars per Hr Difficulty Factor Factors 118 Hours 75 0.88 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY ZDEPT No Department 0000 NONE Linear 1.756.14 Dollars Factors 1756.14 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 1.104.57 Dollars Linear Factors 1104.57 Dollars Activity ID: 1CAC74915 Description: Sludge removal - System 91 Cost Risk 5 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Ouantity** Hours/Unit Cost & Escalation Type Total Total Cost Svs 91 - Sludge Removal 1.00 each 3.384 3.384 77.739 77.739 30.655 108.394 Λ 12.917 SYS Contingency And Escalation 1.00 ea FF 0 12.917 0 12.917 Total for Activity 1CAC74915: 3.384 77.739 12.917 90.656 30.655 0 121.311 Line Item 5 - Sys 91 - Sludge Removal B774 Sludge Removal - For a 6 foot section (3 feet in each direction from the port). BOE 1. Planning - 1 "hot" IWCP per superset. (Separate from this estimate) 2. Erect Scaffold - 1 tube & knuckle scaffold per port. Crew-2 D&D Ops for 9 hours each; 1 RCT for 2.5 hours. 3. Set up equipment at each port. Crew 2 D&D Ops for 4.5 hours each 4. ASSUME containment is set up for size reduction, not part of this estimate. 5. Install access port near sludge line 3' diam. ? 9.5' of cutting @ 4" per minute ? 0.5 hours for cutting; bolt flange cover into place ? 1 hour. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 6. Examine tank interior; probe sludge below the port; assess adequacy of the work plan. Crew - 5 D&D Ops; 1 RCT; 1 Foreman. ? 0.5 hour. 7. Remove sludge from tank using a method to be determined after the results of tank sampling and characterization. Sludge will be extracted at an average rate of 6 gallons per hour. ? For TRU sludge the workers will be in SBA suits. Crew - 5 D&D Ops; 1 RCT; 1 Foreman ? For Low Level sludge, no breathing apparatus is required. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 8. Complete the same procedure (steps 5 through 7) for each port placed into the tank. 9. After all the sludge has been removed from the tank, insert a steam cleaning wand into each port and steam clean the tank walls. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 10. Vacuum all condensate and residue sludge out of the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 11. Close all access ports on the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 12. Clean up the area surrounding each port. . Crew - 2 D&D Ops; 1 RCT for 0.5 hours per port. 13. Remove the scaffold(s). (Removal is part of the scaffold set-up estimate.) A5C Procurement Procure hydrolasing rig (10,000 psi) @ \$100,000 each Procure High-power vacuum rig @ \$50,000 each.

For superset 90 buy 1 of each For superset 91 buy 1 of each For superset 95 buy 3 of each

Page 61 of 85 6/22/00 8:44:08 PM *OFFICIAL USE ONLY*

WBS No: 1CAC91 Baseline Devl Proiect **Rocky Flats Closure Project** 1CAC74915 WBS Filter 1CAC Activity ID: **Baseline Cost and Basis of Estimate** Activity Filter Cost Element Skill Resources Department Curve C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 2.332.00 Hours 2332 Hours 750 STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 443.00 Hours Linear 443 Hours 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 512.00 Hours Linear Factors 512 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 97.00 Hours Linear Factors 97 Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department 8.835.03 Dollars Linear 8835.03 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 4.081.64 Dollars

WBS No: 1CACS	72 Title: Sys 92 - Room 210											
Activity ID: 1CA	C74921 Description: Plan/Eng prep to drain Sys. 9	12.						Cost Risk	1 Schedule R	Pisk 1		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	22.284	153.256
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	8.125	8.125	0	8.125
	Tota	al for Activit	ty 1CAC749	21:		1.729	46.717	84.255	8.125	139.097	22.284	161.381

Line Item 1 - Planning & Engineering Prep to Drain

4081.64 Dollars

Factors

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

	racion ccam.							
es	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00	Hours
Factors	110 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00	Hours
Factors	s 52 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00	Hours
Factors	y 33 Hours	ı	1 Difficulty Factor		T.	T.		
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00	Hours
Factors	y 406 Hours	ı	1 Difficulty Factor		T.	T.		
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00	Hours
Factors	s 8 Hours		1 Difficulty Factor		Т	1		
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00	Hours
Factors	5 65 Hours		1 Difficulty Factor		Т	1		
750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00	Hours
Factors	y 27 Hours		1 Difficulty Factor		Т	1		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00	Hours
Factors			1 Difficulty Factor		T	T		
750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00	Hours
Factors	s 3 Hours		1 Difficulty Factor					

Page 62 of 85 6/22/00 8:44:08 PM *OFFICIAL USE ONLY*

WBS No: 1CAC92 Activity ID: 1CAC74921

Rocky Flats Closure Project Rasalina Cost and Rasis of Estimate

Baseline Devl Proiect 1CAC WBS Filter

	Baseline Cost ar	nd Basis of Estimate Activity	Filter *	Starts In FY *
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	286.00 Hours
Factors 286 Hours	1 Difficulty Factor			
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	600.00 Hours
Factors 600 Hours	1 Difficulty Factor			
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	50.00 Hours
Factors 50 Hours	1 Difficulty Factor	T T	T	
751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	88.00 Hours
Factors 88 Hours	1 Difficulty Factor	T T	T	
A52 TENERA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	27.525.00 Dollars
Factors 367 Hours	75 Dollars per hr	1 Difficulty Factor		
A52 TENERA	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	6.225.00 Dollars
Factors 83 Hours	75 Dollars per hr	1 Difficulty Factor	T	
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	K281S Building 771 Closure Project	Linear	11.175.00 Dollars
Factors 149 Hours	75 Dollars per hr	1 Difficulty Factor		1
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Project	Linear	14.580.00 Dollars
Factors 162 Hours	90 Dollars per hr	1 Difficulty Factor		1
A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN	K281S Building 771 Closure Project	Linear	11.250.00 Dollars
Factors 150 Hours	75 Dollars per hr	1 Difficulty Factor		1
A5H SUBCONTRACTED SRVS	P080 HEALTH PHYSICISTS	K281S Building 771 Closure Project	Linear	13.500.00lDollars
Factors 180 Hours	75 Dollars per hr	 Difficulty Factor 		

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	4.902.35	Dollars
	Factors	4902.35 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3.222.64	Dollars
	Factors	3222.64 Dollars							

Activity ID: 1CAC74922 Description: Tap & drain System 92

Activity ID. TOA	Description. Tap a drain cystem 52,							Cost Risk	T Deneunte N	iiik 0		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	1.241	1.241	26.161	6.726	0	32.887	11.506	44.393
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3.534	3.534	0	3.534
	То	tal for Activ	ity 1CAC749	22:		1.241	26.161	6.726	3.534	36.421	11.506	47.927

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

es		Cost Element		Skill			Department		Curve	Ouantity	Units
	750 STRAIGH	HT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Com	nplex Steelworkers	L	inear	32.68	Hours
	Factors 43	Hours		0.76 Difficulty Factor		·i-					
	750 STRAIGH	HT TIME BASE	T050 F	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	nplex Steelworkers	L	inear	269.04	Hours
	Factors 354	Hours		0.76 Difficulty Factor							
	750 STRAIGH	HT TIME BASE	T060 [D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	nplex Steelworkers	L	inear	753.62	Hours
	Factors 1340	Hours		0.76 Difficulty Factor							
						0.74	Heatcount Cuts				

Page 63 of 85 6/22/00 8:44:09 PM OFFICIAL USE ONLY

4 Schodule Risk

Cost Diele

WBS No: 1CAC92 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74922 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 132.73 Hours Linear Factors 236 Hours Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 6.08 Hours Linear 8 Hours 0.76 Difficulty Factor Factors 47.12 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear Factors 62 Hours Difficulty Factor 6.726.00 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear Dollars per Hr Difficulty Factor Factors 118 Hours 75 0.76 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 2.276.02 Dollars Factors 2276.02 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 1.258.29 Dollars Linear Factors 1258.29 Dollars Activity ID: 1CAC74925 Description: Sludge removal - System 92 Cost Risk 5 Schedule Risk Materials/ Sub | Contingency Line Item Description Units BOELabor Labor Hours Labor Cost Total Prime Burden Cost Total Cost **Ouantity** Hours/Unit Cost & Escalation Type Total Total Cost Svs 92 - Sludge Removal 1.00 each 594 594 13.029 0 13.029 4.599 17.629 SYS Contingency And Escalation 1.00 ea FF 0 2.818 2.818 0 2.818 13.029 Total for Activity 1CAC74925: 594 2.818 4.599 0 15.847 20.447 Line Item 5 - Sys 92 - Sludge Removal B774 Sludge Removal - For a 6 foot section (3 feet in each direction from the port). BOE 1. Planning - 1 "hot" IWCP per superset. (Separate from this estimate) 2. Erect Scaffold - 1 tube & knuckle scaffold per port. Crew-2 D&D Ops for 9 hours each; 1 RCT for 2.5 hours. 3. Set up equipment at each port. Crew 2 D&D Ops for 4.5 hours each 4. ASSUME containment is set up for size reduction, not part of this estimate. 5. Install access port near sludge line 3' diam. ? 9.5' of cutting @ 4" per minute ? 0.5 hours for cutting; bolt flange cover into place ? 1 hour. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 6. Examine tank interior; probe sludge below the port; assess adequacy of the work plan. Crew - 5 D&D Ops; 1 RCT; 1 Foreman. ? 0.5 hour. 7. Remove sludge from tank using a method to be determined after the results of tank sampling and characterization. Sludge will be extracted at an average rate of 6 gallons per hour. ? For TRU sludge the workers will be in SBA suits. Crew - 5 D&D Ops; 1 RCT; 1 Foreman ? For Low Level sludge, no breathing apparatus is required. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 8. Complete the same procedure (steps 5 through 7) for each port placed into the tank. 9. After all the sludge has been removed from the tank, insert a steam cleaning wand into each port and steam clean the tank walls. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 10. Vacuum all condensate and residue sludge out of the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 11. Close all access ports on the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 12. Clean up the area surrounding each port. . Crew - 2 D&D Ops; 1 RCT for 0.5 hours per port. 13. Remove the scaffold(s). (Removal is part of the scaffold set-up estimate.) A5C Procurement Procure hydrolasing rig (10,000 psi) @ \$100,000 each Procure High-power vacuum rig @ \$50,000 each. For superset 90 buy 1 of each For superset 91 buy 1 of each For superset 95 buy 3 of each

WBS No: 1CAC92 Baseline Devl Proiect **Rocky Flats Closure Project** 1CAC74925 WBS Filter 1CAC Activity ID: **Baseline Cost and Basis of Estimate** Activity Filter Cost Element Skill Resources Department Curve C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 222.00 Hours 222 Hours T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 315.00 Hours 750 STRAIGHT TIME BASE Linear 315 Hours 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 49.00 Hours Linear Factors 49 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 8.00 Hours Linear Factors 8 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department 1.994.25 Dollars Linear 1994.25 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 823.81 Dollars

WBS No: 1CACS	93											
Activity ID: 1CA	C74931 Description: Plan/Eng prep to drain Sys. 9	93.						Cost Risk	1 Schedule R	Risk 1		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	Planning & Engineering Prep to Drain	1.00	each	EE	1.729	1.729	46.717	84.255	0	130.972	18.823	149.795
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	15.848	15.848	0	15.848
	Tot	al for Activi	ty 1CAC749	31:		1.729	46.717	84.255	15.848	146.820	18.823	165.644

Line Item 1 - Planning & Engineering Prep to Drain

823.813 Dollars

Factors

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

s	Cost Element		Skill		Department	Curve	Quantity Units
750 STR	AIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00 Hours
Factors 11	10 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00 Hours
Factors 52	2 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00 Hours
Factors 33	3 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00 Hours
Factors 40	06 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00 Hours
Factors 8	Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00 Hours
Factors 65	5 Hours		1 Difficulty Factor				T
750 STR	AIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00 Hours
Factors 27	7 Hours		1 Difficulty Factor				T
750 STR	AIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00 Hours
Factors 1	Hours		1 Difficulty Factor				T
750 STR	AIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00 Hours
Factors 3	Hours		1 Difficulty Factor				

Page 65 of 85 6/22/00 8:44:09 PM *OFFICIAL USE ONLY*

WBS No: 1CAC93 *Activity ID:* 1CAC74931

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC

		Baseline Cost an	u basis	or Estimate	Activity Filter *	Starts In FY *
750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	286.00 Hours
Factors 286 Hours		1 Difficulty Factor				
750 STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	600.00 Hours
Factors 600 Hours		1 Difficulty Factor				
751 OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	50.00 Hours
Factors 50 Hours		1 Difficulty Factor				
751 OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	88.00 Hours
Factors 88 Hours		1 Difficulty Factor		1		
A52 TENERA	E070	MECHANICAL ENGINEERS	K281S	Buildina 771 Closure Proiect	Linear	27.525.00 Dollars
Factors 367 Hours		75 Dollars per hr		1 Difficulty Factor		
A52 TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Proiect	Linear	6.225.00 Dollars
Factors 83 Hours		75 Dollars per hr		1 Difficulty Factor		
A57 LATA	P160	TECHNICAL WRITERS AND EDITOR	K281S	Building 771 Closure Project	Linear	11.175.00 Dollars
Factors 149 Hours		75 Dollars per hr		1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	14.580.00 Dollars
Factors 162 Hours		90 Dollars per hr		1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	11.250.00 Dollars
Factors 150 Hours		75 Dollars per hr		1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Building 771 Closure Project	Linear	13.500.00 Dollars
Factors 180 Hours		75 Dollars per hr		 Difficulty Factor 		

Line Item SYS - Contingency And Escalation

BOE

Resources

Line Item

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	10.434.04	Dollars
_	Factors	10434.0 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	5.414.23	Dollars

Total for Activity 1CAC74932:

Factors 5414.23 Dollars

Tap & Drain

Activity ID: 1CAC74932	Description:	Tap 8	& drain	System	93	Š.
------------------------	--------------	-------	---------	--------	----	----

Contingency And Escalation

Description

							Cost Hisk	beneaute 1	1510		
I	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
l			Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
	1.00	each	EE	1.993	1.993	41.996	10.797	0	52.793	14.824	67.617
ı	1.00	ea	EE	0	0	0	0	10.432	10.432	0	10.432

10 797

41 996

Coat Diele

A Cabadula Diele

Line Item 2 - Tap & Drain

BOE

SYS

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

1.993

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

es			Cost Element		Skill			Department	Curve	Ouantity	Units
L	750	STRAIGH	T TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Con	nplex Steelworkers	Linear	52.46	Hours
	Factors	43	Hours		1.22 Difficulty Factor				 		
L	750	STRAIGH	T TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Con	nplex Steelworkers	Linear	431.88	Hours
-	Factors	354	Hours		1.22 Difficulty Factor				 		
	750	STRAIGH	T TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Con	nplex Steelworkers	Linear	1.209.75	Hours
	Factors	1340	Hours		1.22 Difficulty Factor						
							0.74	Heatcount Cuts			

Page 66 of 85 6/22/00 8:44:10 PM *OFFICIAL USE ONLY*

WBS No: 1CAC93 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74932 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 213.06 Hours Linear Factors 236 Hours 1.22 Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 9.76 Hours Linear 8 Hours Difficulty Factor 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 75.64 Hours Linear Factors 62 Hours Difficulty Factor 10.797.00 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear Dollars per Hr Difficulty Factor Factors 118 Hours 75 1.22 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 7.271.77 Dollars 0000 NONE ZDEPT No Department Linear Factors 7271.77 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 3.159.84 Dollars Linear Factors 3159.84 Dollars Activity ID: 1CAC74935 Description: Sludge removal - System 93 Cost Risk 5 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Ouantity** Hours/Unit Cost & Escalation Type Total Total Cost Svs 93 - Sludge Removal 1.00 each 5.295 5.295 121.640 121.640 42.939 164.579 Λ SYS Contingency And Escalation 1.00 ea FF 0 26.309 26.309 0 26.309 Total for Activity 1CAC74935: 5.295 121.640 26.309 147.950 42.939 190.889 Line Item 5 - Sys 93 - Sludge Removal B774 Sludge Removal - For a 6 foot section (3 feet in each direction from the port). BOE 1. Planning - 1 "hot" IWCP per superset. (Separate from this estimate) 2. Erect Scaffold - 1 tube & knuckle scaffold per port. Crew-2 D&D Ops for 9 hours each; 1 RCT for 2.5 hours. 3. Set up equipment at each port. Crew 2 D&D Ops for 4.5 hours each 4. ASSUME containment is set up for size reduction, not part of this estimate. 5. Install access port near sludge line 3' diam. ? 9.5' of cutting @ 4" per minute ? 0.5 hours for cutting; bolt flange cover into place ? 1 hour. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 6. Examine tank interior; probe sludge below the port; assess adequacy of the work plan. Crew - 5 D&D Ops; 1 RCT; 1 Foreman. ? 0.5 hour. 7. Remove sludge from tank using a method to be determined after the results of tank sampling and characterization. Sludge will be extracted at an average rate of 6 gallons per hour. ? For TRU sludge the workers will be in SBA suits. Crew - 5 D&D Ops; 1 RCT; 1 Foreman ? For Low Level sludge, no breathing apparatus is required. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 8. Complete the same procedure (steps 5 through 7) for each port placed into the tank. 9. After all the sludge has been removed from the tank, insert a steam cleaning wand into each port and steam clean the tank walls. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 10. Vacuum all condensate and residue sludge out of the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 11. Close all access ports on the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 12. Clean up the area surrounding each port. . Crew - 2 D&D Ops; 1 RCT for 0.5 hours per port. 13. Remove the scaffold(s). (Removal is part of the scaffold set-up estimate.) A5C Procurement Procure hydrolasing rig (10,000 psi) @ \$100,000 each Procure High-power vacuum rig @ \$50,000 each. For superset 90 buy 1 of each For superset 91 buy 1 of each

For superset 95 buy 3 of each

Page 67 of 85 6/22/00 8:44:10 PM *OFFICIAL USE ONLY*

WBS No: 1CAC93 Baseline Devl Proiect **Rocky Flats Closure Project** 1CAC74935 WBS Filter 1CAC Activity ID: **Baseline Cost and Basis of Estimate** Activity Filter Cost Element Skill Resources Department Curve C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 3.656.00 Hours 3656 Hours 750 STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 686.00 Hours Linear 686 Hours 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 802.00 Hours Linear Factors 802 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 151.00 Hours Linear Factors 151 Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 18.618.12 Dollars 18618.1 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 7.691.04 Dollars

WBS No: 1CAC	94 Title: Sys 94 - Rms 200, 204-09, 2	220, 301-06	6, 3										
Activity ID: 1CA	C74941 Description: Plan/Eng prep to drain Sys. 9	. 94,							Cost Risk 1 Schedule Risk 1				
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost	
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost			
1	1 Planning & Engineering Prep to Drain		each	EE	1,729	1,729	46.717	84.255	0	130.972	22.284	153.256	
SYS Contingency And Escalation		1.00	1.00 ea E		0	0	0	0	8.125	8.125	0	8.125	
	Tota			41:		1.729	46.717	84.255	8.125	139.097	22.284	161.381	

Line Item 1 - Planning & Engineering Prep to Drain

7691.04 Dollars

Factors

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

	Cost Element		Skill		Department	Curve	Ouantity Units
750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00 Hours
Factors	110 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00 Hours
Factors	52 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00 Hours
Factors	33 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00 Hours
Factors	406 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00 Hours
Factors	8 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00 Hours
Factors	65 Hours		1 Difficulty Factor		_		
750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00 Hours
Factors	27 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00 Hours
Factors	1 Hours		1 Difficulty Factor				
750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00 Hours
Factors	3 Hours		1 Difficulty Factor				

Page 68 of 85 6/22/00 8:44:10 PM *OFFICIAL USE ONLY*

WBS No: 1CAC94 *Activity ID:* 1CAC74941

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Base
WBS Filter 1CAG

Baseline Devl 1CAC

	Daseille Cost at	Activity Filter *		Starts In FY *
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	286.00 Hours
Factors 286 Hours	1 Difficulty Factor			
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	600.00 Hours
Factors 600 Hours	1 Difficulty Factor			
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI	KC10H 771 Complex Steelworkers	Linear	50.00 Hours
Factors 50 Hours	1 Difficulty Factor			
751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED	KC10H 771 Complex Steelworkers	Linear	88.00 Hours
Factors 88 Hours	1 Difficulty Factor			
A52 TENERA	E070 MECHANICAL ENGINEERS	K281S Building 771 Closure Project	Linear	27.525.00 Dollars
Factors 367 Hours	75 Dollars per hr	1 Difficulty Factor		
A52 TENERA	E130 OTHER ENGINEERS	K281S Building 771 Closure Project	Linear	6.225.00 Dollars
Factors 83 Hours	75 Dollars per hr	1 Difficulty Factor		
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	K281S Building 771 Closure Project	Linear	11.175.00 Dollars
Factors 149 Hours	75 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	K281S Building 771 Closure Proiect	Linear	14.580.00 Dollars
Factors 162 Hours	90 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN	K281S Building 771 Closure Project	Linear	11.250.00 Dollars
Factors 150 Hours	75 Dollars per hr	1 Difficulty Factor		
A5H SUBCONTRACTED SRVS	P080 HEALTH PHYSICISTS	K281S Building 771 Closure Project	Linear	13.500.00 Dollars
Factors 180 Hours	75 Dollars per hr	1 Difficulty Factor		

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	4.902.35	Dollars
	Factors	4902.35 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3.222.64	Dollars
	Factors	3222.64 Dollars							

Activity ID: 1CAC74942 Description: Tap & drain System 94,

Cost Risk 4 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	653	653	13.769	3.540	0	17.309	4.860	22.169
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	3.420	3.420	0	3.420
	To	tal for Activi	tv 1CAC749	42:		653	13.769	3.540	3.420	20.729	4.860	25.590

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

s	Cost Element		Skill			Department	Curve	<i>Ouantity</i>	Units
75	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Con	nplex Steelworkers	Linear	17.20	Hours
Fact	ors 43 Hours		0.4 Difficulty Factor						
75	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Con	nplex Steelworkers	Linear	141.60	Hours
Fact	ors 354 Hours		0.4 Difficulty Factor						
75	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Con	nplex Steelworkers	Linear	396.64	Hours
Fact	ors 1340 Hours		0.4 Difficulty Factor						
					0.74	Heatcount Cuts			

Page 69 of 85 6/22/00 8:44:10 PM *OFFICIAL USE ONLY*

WBS No: 1CAC94 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74942 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 69.86 Hours Linear Factors 236 Hours Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 3.20 Hours Linear Hours 0.4 Difficulty Factor 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 24.80 Hours Linear Factors 62 Hours Difficulty Factor 3.540.00 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear 75 Dollars per Hr 0.4 Difficulty Factor Factors 118 Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY ZDEPT No Department 0000 NONE Linear 2.384.19 Dollars 2384.19 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 1.036.01 Dollars Linear 1036.01 Dollars WBS No: 1CAC95 Title: Svs 95 - Rooms 241, 341, and 441 1 Schedule Risk Activity ID: 1CAC74951 Description: Plan/Eng prep to drain Sys. 95, Cost Risk 1 Total Prime Line Item Description Quantity Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Burden Cost Total Cost Type Hours/Unit **Total Total** Cost & Escalation Cost 147.463 Planning & Engineering Prep to Drain 1.00 each EE 1.729 1.729 46.717 84.255 130.972 16.491 FF SYS Contingency And Escalation 1.00 ea 22.040 22.040 22.040

Total for Activity 1CAC74951:

Line Item 1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

0

0

46.717

84.255

22.040

153.012

1.729

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

s	Cost Element		Skill		Department	Curve	Quantity Units
750 STR	AIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Project	Linear	110.00 Hours
Factors 11	10 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	52.00 Hours
Factors 52	2 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Project	Linear	33.00 Hours
Factors 33	3 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	406.00 Hours
Factors 40	06 Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	8.00 Hours
Factors 8	Hours		1 Difficulty Factor				
750 STR	AIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	65.00 Hours
Factors 65	5 Hours		1 Difficulty Factor				T
750 STR	AIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	27.00 Hours
Factors 27	7 Hours		1 Difficulty Factor				T
750 STR	AIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Project	Linear	1.00 Hours
Factors 1	Hours		1 Difficulty Factor				T
750 STR	AIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried	Linear	3.00 Hours
Factors 3	Hours		1 Difficulty Factor				

Page 70 of 85 6/22/00 8:44:11 PM OFFICIAL USE ONLY

0

169.504

16.491

WBS No: 1CAC95 Activity ID: 1CAC74951

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC

TOTAL TOO	Baseline Cost and Basis of Es	Activity Filter *	Starts In FY *
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI KC10H 771 C	Complex Steelworkers Linear	286.00 Hours
Factors 286 Hours	1 Difficulty Factor		
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 C	Complex Steelworkers Linear	600.00 Hours
Factors 600 Hours	1 Difficulty Factor		
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI KC10H 771 C	Complex Steelworkers Linear	50.00 Hours
Factors 50 Hours	1 Difficulty Factor		
751 OVERTIME BASE & PRE.	T060 D&D HAZ REDUC TECH / RISK RED KC10H 771 C	Complex Steelworkers Linear	88.00lHours
Factors 88 Hours	1 Difficulty Factor		
A52 TENERA	E070 MECHANICAL ENGINEERS K281S Buildi	ng 771 Closure Proiect Linear	27.525.00 Dollars
Factors 367 Hours	75 Dollars per hr 1	Difficulty Factor	
A52 TENERA		ng 771 Closure Proiect Linear	6.225.00 Dollars
Factors 83 Hours	75 Dollars per hr 1	Difficulty Factor	
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR K281S Buildi		11.175.00 Dollars
Factors 149 Hours	75 Dollars per hr 1	Difficulty Factor	
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER K281S Buildi		14.580.00 Dollars
Factors 162 Hours	90 Dollars per hr 1	Difficulty Factor	14 050 00 5 11
A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN K281S Buildi		11.250.00lDollars
Factors 150 Hours	75 Dollars per hr 1	Difficulty Factor	40 500 00 D-II
A5H SUBCONTRACTED SRVS		ng 771 Closure Project Linear	13.500.00 Dollars
Factors 180 Hours	75 Dollars per hr 1	Difficulty Factor	

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	<i>Ouantity</i>	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	15.149.17	Dollars
	Factors	15149.2 Dollars	-' 						
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	6.891.17	Dollars

Factors 6891.17 Dollars

Activity ID: 1CAC74952 Description: Tap & drain System 95,

Cost Risk 4 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
2	Tap & Drain	1.00	each	EE	915	915	19.277	4.956	0	24.233	6.805	31.037
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	4.788	4.788	0	4.788
	Tot	al for Activi	ty 1CAC749	52:		915	19.277	4.956	4.788	29.021	6.805	35.826

Line Item 2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resources

s		Cost Element		Skill			Department	Curve	Quantity	Units
Į	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Com	plex Steelworkers	Linear	24.08	Hours
_	Factors	43 Hours		0.56 Difficulty Factor						
Į	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Com	plex Steelworkers	Linear	198.24	Hours
_	Factors	354 Hours		0.56 Difficulty Factor						
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Com	plex Steelworkers	Linear	555.30	Hours
	Factors	1340 Hours		0.56 Difficulty Factor						
						0.74	Hostcount Cute			

Page 71 of 85 6/22/00 8:44:11 PM *OFFICIAL USE ONLY*

WBS No: 1CAC95 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74952 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY 750 STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 97.80 Hours Linear Factors 236 Hours Difficulty Factor Heatcount Cuts 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 4.48 Hours Linear 8 Hours Difficulty Factor 34,72 Hours 751 OVERTIME BASE & PRE T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers Linear Factors 62 Hours Difficulty Factor 4.956.00 Dollars A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear Dollars per Hr Difficulty Factor Factors 118 Hours 75 0.56 Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 3.337.86 Dollars 0000 NONE ZDEPT No Department Linear Factors 3337.86 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 1.450.42 Dollars Linear Factors 1450.42 Dollars Activity ID: 1CAC74955 Description: Sludge removal - System 95 Cost Risk 5 Schedule Risk Line Item Description Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost **Ouantity** Hours/Unit & Escalation Type Total Total Cost Cost Svs 95 - Sludge Removal 1.00 each 35.129 35.129 807.018 807.018 282,917 1.089.935 Λ SYS Contingency And Escalation 1.00 ea FF 0 212.971 212.971 212.971 Total for Activity 1CAC74955: 35.129 212.971 1.019.989 282.917 1.302.906 807.018 Line Item 5 - Sys 95 - Sludge Removal B774 Sludge Removal - For a 6 foot section (3 feet in each direction from the port). BOE 1. Planning - 1 "hot" IWCP per superset. (Separate from this estimate) 2. Erect Scaffold - 1 tube & knuckle scaffold per port. Crew-2 D&D Ops for 9 hours each; 1 RCT for 2.5 hours. 3. Set up equipment at each port. Crew 2 D&D Ops for 4.5 hours each 4. ASSUME containment is set up for size reduction, not part of this estimate. 5. Install access port near sludge line 3' diam. ? 9.5' of cutting @ 4" per minute ? 0.5 hours for cutting; bolt flange cover into place ? 1 hour. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 6. Examine tank interior; probe sludge below the port; assess adequacy of the work plan. Crew - 5 D&D Ops; 1 RCT; 1 Foreman. ? 0.5 hour. 7. Remove sludge from tank using a method to be determined after the results of tank sampling and characterization. Sludge will be extracted at an average rate of 6 gallons per hour. ? For TRU sludge the workers will be in SBA suits. Crew - 5 D&D Ops; 1 RCT; 1 Foreman ? For Low Level sludge, no breathing apparatus is required. Crew - 5 D&D Ops; 1 RCT; 1 Foreman 8. Complete the same procedure (steps 5 through 7) for each port placed into the tank. 9. After all the sludge has been removed from the tank, insert a steam cleaning wand into each port and steam clean the tank walls. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 10. Vacuum all condensate and residue sludge out of the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 11. Close all access ports on the tank. . Crew - 5 D&D Ops; 1 RCT; 1 Foreman for 0.5 hours per port. 12. Clean up the area surrounding each port. . Crew - 2 D&D Ops; 1 RCT for 0.5 hours per port. 13. Remove the scaffold(s). (Removal is part of the scaffold set-up estimate.) A5C Procurement Procure hydrolasing rig (10,000 psi) @ \$100,000 each Procure High-power vacuum rig @ \$50,000 each. For superset 90 buy 1 of each For superset 91 buy 1 of each For superset 95 buy 3 of each

WBS No: 1CAC95 Baseline Devl Proiect Rocky Flats Closure Project 1CAC74955 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** <u>Activi</u>ty Filter Starts In FY Units Cost Element Resources Skill Department Curve 750 STRAIGHT TIME BASE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers Linear 24.085.00 Hours 24085 Hours T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 4.721.00 Hours 750 STRAIGHT TIME BASE Linear 4721 Hours 751 OVERTIME BASE & PRE C120 D&D SKILLED TRADES KC10H 771 Complex Steelworkers 5.287.00 Hours Linear Factors 5287 Hours T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 1.036.00 Hours 751 OVERTIME BASE & PRE Linear 1036 Hours Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve **Ouantity** Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 150.744.50 Dollars Factors 150745 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department 62.226.57 Dollars Linear 62226.6 Dollars WBS No: 1CACAA Title: Deactivation Project Support 1 Schedule Risk Activity ID: 1CACAA00 Description: B771 / 774 Deactivation Support - FY00 Cost Risk Materials/ Sub | Contingency Line Item BOELabor Labor Hours Labor Cost Total Prime Burden Cost Total Cost Description Quantity Units Type Hours/Unit **Total Total** Cost & Escalation Cost B-774 Support 1.00 lot FF 250 250 6.253 150.545 156.798 3.051 159.849 FF 1F7MI200 Liquids B771 Project Management 7.541 7.541 234.866 1.00 lot 130.646 0 365.512 114.614 480.126 Total for Activity 1CACAA00: 7.791 241.118 522.309 117.666 639.975 281.191 0 Line Item 1 - B-774 Support Estimators Experience - Brian Larsen has developed project scopes and estimates for many projects at RFETS including the solution bottle disposition low BOE level tank drain, high level tank drain, B-771 re-engineering, and B-771/774 decommissioning. Experience Item Desc -B-774 Project support as described in the activity description. Breakdown of Cost Data: Item - B-774 Project support as described in the activity description Units - lot Unit Cost = See Activity cost report Unit Cost Adjustment factor - N/A Revised Unit Cost - N/A Basis for adjustment - N/A Resources Cost Element Skill Department Curve Quantity Units 750 STRAIGHT TIME BASE P150 TRAINERS K281S Building 771 Closure Project 250.00 Hours Linear 250 Hours Factors A57 LATA P070 COST ESTIMATORS PLANNERS AN | K281S | Building 771 Closure Project 5,508.30 Dollars Linear Factors 250 Hours Dollars per hour Zarret 0.3612 (82/227) Days A5H SUBCONTRACTED SRVS NUCLEAR (CRITICALITY) ENGINEER | K281S | Building 771 Closure Project Linear 36.120.00 Dollars 1250 Hours 0.3612 (82/227) Days 80 Dollars per hour A5H SUBCONTRACTED SRVS E110 QUALITY CONTROL ENGINEERS K281S Building 771 Closure Project 3.160.50 Dollars Linear 70 Dollars per hour 125 Hours 0.3612 (82/227) Davs Factors A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project 4.224.23 Dollars Linear 11695 Prime Dollars 0.3612 (82/227) Days K100S Kaiser-Hill M020 MANAGERS (GRADE 69 - 72) 30.882.60 Dollars A5H SUBCONTRACTED SRVS Linear Dollars per hour mot review 0.3612 (82/227) Days Factors 950 Hours A5H SUBCONTRACTED SRVS M020 MANAGERS (GRADE 69 - 72) K281S Building 771 Closure Project 27.528.86 Dollars Linear 76215 Dollars 0.3612 (82/227) Davs Factors A5H SUBCONTRACTED SRVS P070 COST ESTIMATORS PLANNERS AN K281S Building 771 Closure Project Linear 23.387.70 Dollars 925 Hours Dollars per hour 0.3612 (82/227) Days A5H SUBCONTRACTED SRVS P090 INDUSTRIAL HYGIENISTS K281S Building 771 Closure Project 19.733.03 Dollars Linear Factors 19733.0 Dollars

Page 73 of 85 6/22/00 8:44:12 PM *OFFICIAL USE ONLY*

WBS No: 1CACAA 1CACAA00 Activity ID:

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Baseline Devl Proiect 1CAC WBS Filter Activity Filter

Starts In FY

Line Item 1F7MI200 - Liquids B771 Project Management

Revised Unit Cost - N/A Basis for adjustment - N/A

BOE

Estimators Experience - Ray Boyle, Liquids Removal Team Project Engineer, has nearly 40 years of experience as a degreed Chemical engineer managing numerous environmental projects. Ray has developed estimates for many projects at RFETS including the Solar Ponds, Low and High Level tank draining, and earlier work on B-771 tap and drain. He worked in the oil and gas industry for many years prior to coming to RFETS as a project manager for large drilling projects. He possesses the detailed knowledge and experience to quantify and qualify work necessary to perform activities described within the Tap and Drain/Process Pipin Removal scope.

Pam Arnold, Project Engineer for Liquids Removal Team, is an Environmental Scientist with over 25 years of experience in project design and execution. Nearly nine (9) years of her experience is at RFETS including five (5) years as a B-771 Liquids project engineer. Her experience with low-level tank draining, highlevel tank draining, and prior years' tap and drain and pipe removal work give her applicable, direct knowledge about estimating the resources needed to perform the tasks within scope of the Process Piping Removal Project.

Experience Item Desc - Project management scope as described in the activity description. Breakdown of Cost Data: Item - Project management activities. Units - Lot Unit Cost - See totals Unit Cost Adjustment factor - None

Resources

s	Cost Element		Skill		Department	Curve	Ouantity	Units
75	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	5.273.52	Hours
Fact	ors 8 Foreman		1825 Hours		0.3612 82 Davs			
75	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	659.19	Hours
Fact	ors 1825 Hours		0.3612 (82/227) Davs		VonFeldt			,
75	STRAIGHT TIME BASE	S020	ENVIRONMENTAL SCIENTISTS	K281S	Building 771 Closure Project	Linear	659.19	Hours
Fact	ors 1825 hours	ı	0.3612 (82/227) Davs		Pam Arnold			1
75	OVERTIME BASE & PRE.	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	949.23	Hours
Fact	ors 8 Foreman	ı	1825 Hours		0.18 OT Factor	0.3612 82 Davs		1
A5	2 TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	52.735.20	Dollars
Fact	ors 1825 Hours	1	80 Dollars per hr Jeff Fauble			0.3612 (82/227) Davs		1
A5	7 LATA	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	15.423.24	Dollars
Fact	ors 700 Hours		61 Dollars per hour Zarret		1	0.3612 (82/227) Days		
A5	C SUPPLIES	0000	NONE	K281S	Building 771 Closure Project	Linear	7.224.00	Dollars
Fact	ors 20000 Dollars				0.3612 (82/227) Davs			
A5	H SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	52.735.20	Dollars
Fact	ors 1825 Hours		80 Dollars per hour Parrish		1	0.3612 (82/227) Davs		
A5	M TRAVEL/TRAIN/RELOCAT	0000	NONE	K281S	Building 771 Closure Project	Linear	2.528.40	Dollars

0.3612 (82/227) Davs 7000 Dollars/ea Activity ID: 4CACAA04 Description: B771 / 774 Deactivation Support - FY01

Activity ID: 1CA	CAA01 Description: B771 / 774 Deactivation Su	ipport - F	/01					Cost Risk	1 Schedule R	risk 1		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	B-774 Support	1.00	lot	EE	250	250	6.253	381.893	0	388.146	2.982	391.128
1F7MI201	Liquids Project Management	1.00	each	EE	20.878	20.878	650.237	361.700	0	1.011.937	310.163	1.322.100
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	90.828	90.828	0	90.828
	Tot	itv 1CACAA	01:		21.128	656.490	743.593	90.828	1.490.911	313.146	1.804.056	

Line Item 1 - B-774 Support

BOE

Estimators Experience - Brian Larsen has developed project scopes and estimates for many projects at RFETS including the solution bottle disposition low level tank drain, high level tank drain, B-771 re-engineering, and B-771/774 decommissioning. Experience Item Desc -

B-774 Project support as described in the activity description.

Breakdown of Cost Data:

Item - B-774 Project support as described in the activity description

Units - lot

Unit Cost - See activity cost total Unit Cost Adjustment factor - N/A

Revised Unit Cost - N/A

Page 74 of 85 6/22/00 8:44:12 PM OFFICIAL USE ONLY Rocky Flats Closure Project
Baseline Cost and Basis of Estimate

Proiect
WBS Filter
Activity Filter

Baseline Devl 1CAC

Starts In FY

Resources

1CACAA

1CACAA01

Basis for adjustment - N/A

WBS No:

Activity ID:

	Dub I	5 101 dajabeene 11/11							
es		Cost Element		Skill		Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	250.00	Hours
	Factors	250 Hours			,				
	A57	LATA	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	15.250.00	Dollars
1	Factors	250 Hours	ı	61 Dollars per hour Zarret	I				
	A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	100.000.00	Dollars
	Factors	80 Dollars per hour	1	1250 Hours					
	A5H	SUBCONTRACTED SRVS	E110	QUALITY CONTROL ENGINEERS	K281S	Building 771 Closure Project	Linear	8.750.00	Dollars
1	Factors	70 Dollars per hour	1	125 Hours	ı				
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Proiect	Linear	11.695.00	Dollars
	Factors		ı			1			
	A5H	SUBCONTRACTED SRVS	M020	MANAGERS (GRADE 69 - 72)	K100S	Kaiser-Hill	Linear	85.500.00	Dollars
	Factors	950 Hours	ı	90 Dollars per hour mat review	1	1			
	A5H	SUBCONTRACTED SRVS	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Proiect	Linear	76.215.00	Dollars
1	Factors		1			1			
	A5H	SUBCONTRACTED SRVS	P070	ICOST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Proiect	Linear	64.750.00	Dollars
1	Factors		1	70 Dollars per hour					
	A5H	SUBCONTRACTED SRVS	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Proiect	Linear	19.733.03	Dollars
	Factors	19733.0 Dollars							

Line Item 1F7MI201 - Liquids Project Management

BOE

Estimators Experience - Ray Boyle, Liquids Removal Team Project Engineer, has nearly 40 years of experience as a degreed Chemical engineer managing numerous environmental projects. Ray has developed estimates for many projects at RFETS including the Solar Ponds, Low and High Level tank draining, and earlier work on B-771 tap and drain. He worked in the oil and gas industry for many years prior to coming to RFETS as a project manager for large drilling projects. He possesses the detailed knowledge and experience to quantify and qualify work necessary to perform activities described within the Bottlebox scope. His recent management of B771 and B371 liquids projects has provided the experience necessary to scope and estimate the FY 99 B-771 Bottlebox effort.

Pam Arnold, Project Engineer for Liquids Removal Team, is an Environmental Scientist with over 25 years of experience in project design and completion.
Nearly nine (9) years of her experience is at RFETS including five (5) years as a B-771 Liquids project engineer. Her experience with low-level tank
draining, high-level tank draining, and prior years' tap and drain and pipe removal work give her applicable, direct knowledge about estimating resources
needed to perform the tasks within scope of the Process Piping Removal Project.

Experience Item Desc - Project management scope as described in the activity description.

Breakdown of Cost Data:

Item - Project management activities.

Units - Lot

Unit Cost - See totals

Unit Cost Adjustment factor - None

Revised Unit Cost - N/A

Basis for adjustment - N/A

Resources

ces		Cost Element		Skill		Department	Curve	Ouantity Units
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	14.600.00 Hours
	Factors	8 Foreman		1825 Hours				
	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	1.825.00 Hours
	Factors	1825 Hours		Von Feldtr	,			
	750	STRAIGHT TIME BASE	S020	ENVIRONMENTAL SCIENTISTS	K281S	Building 771 Closure Project	Linear	1.825.00 Hours
ı	Factors	1825 hours		Pam Arnold	I		1	Ţ
	751	OVERTIME BASE & PRE.	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	2.628.00 Hours
ı	Factors	8 Foreman		1825 Hours	I	0.18 OT Factor	1	
	A52	TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	146.000.00 Dollars
	Factors	1825 Hours		80 Dollars per hr Jeff Fauble		1		
	A57	LATA	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Proiect	Linear	42.700.00 Dollars
	Factors	700 Hours		61 Dollars per hour Zarret		1		
	A5C	SUPPLIES	0000	NONE	K281S	Building 771 Closure Proiect	Linear	20.000.00 Dollars
	Factors	20000 Dollars						

Page 75 of 85 6/22/00 8:44:12 PM *OFFICIAL USE ONLY*

WBS No: 1CACAA
Activity ID: 1CACAA01

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect WBS Filter Baseline Devl 1CAC

				Activity Filter	*	Starts In FY *
A5H SUBCONTRACTED SRVS	P070 COST E	STIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	146.000.00 Dollars
Factors 1825 Hours		Dollars per hour Parrish				
A5M TRAVEL/TRAIN/RELOCAT	0000 NONE		K281S	Building 771 Closure Project	Linear	7.000.00 Dollars
Factors 7000 Dollars/ea						

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element	Skill			Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	54.802.63	Dollars
F	actors	54802.6 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	36.025.36	Dollars

Factors 36025.4 Dollars

Activity ID: 1CACAA02 Description: B771 / 774 Deactivation Support - FY02

Cost Risk 1 Schedule Risk

: 1

Activity ID. 107	Description. Billit Dedetivation Co	Cupport 1102							Cost Risk Schedite Risk			
Line Item	Description	Quantity	Quantity Units		Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	B-774 Support	1.00	lot	EE	250	250	6.253	381.893	0	388.146	2.207	390.353
1F7MI202				EE	9.450	9.450	282.724	82.829	0	365.553	99.801	465.354
SYS			ea	EE	0	0	0	0	127.897	127.897	0	127.897
	To	tal for Activity 1CACAA02:			9.700	288.976	464.722	127.897	881.595	102.009	983.604	

Line Item 1 - B-774 Support

BOE

Estimators Experience - Brian Larsen has developed project scopes and estimates for many projects at RFETS including the solution bottle disposition low level tank drain, high level tank drain, B-771 re-engineering, and B-771/774 decommissioning.

Experience Item Desc -

B-774 Project support as described in the activity description.

Breakdown of Cost Data:

Item - B-774 Project support as described in the activity description

Units - lot

Unit Cost - See activity cost totals

Unit Cost Adjustment factor - N/A

Revised Unit Cost - N/A

Basis for adjustment - N/A

Resources

	Cost Element		Skill		Department	Curve	Quantity	Units
750 ST	RAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Project	Linear	250.00	Hours
Factors	250 Hours							
A57 LA	TA	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	15.250.00	Dollars
actors	250 Hours		61 Dollars per hour Zarret					
A5H SU	IBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	100.000.00	Dollars
actors	80 Dollars per hour		1250 Hours					
A5H SU	IBCONTRACTED SRVS	E110	QUALITY CONTROL ENGINEERS	K281S	Building 771 Closure Project	Linear	8.750.00	Dollars
actors	70 Dollars per hour		125 Hours					
A5H SU	JBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	11.695.00	Dollars
actors	11695 Prime Dollars							
A5H SU	JBCONTRACTED SRVS	M020	MANAGERS (GRADE 69 - 72)	K100S	Kaiser-Hill	Linear	85.500.00	Dollars
actors	950 Hours		90 Dollars per hour mat review					
A5H SU	JBCONTRACTED SRVS	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	76.215.00	Dollars
actors	76215 Dollars							
A5H SU	JBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	64.750.00	Dollars
actors	925 Hours		70 Dollars per hour					
A5H SU	JBCONTRACTED SRVS	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Project	Linear	19.733.03	Dollars
actors	19733.0 Dollars							

Line Item 1F7MI202 - Liquids Project Management

BOE

Estimators Experience - Ray Boyle, Liquids Removal Team Project Engineer, has nearly 40 years of experience as a degreed Chemical engineer managing numerous environmental projects. Ray has developed estimates for many projects at RFETS including the Solar Ponds, Low and High Level tank draining, and earlier work on B-771 tap and drain. He worked in the oil and gas industry for many years prior to coming to RFETS as a project manager for large drilling projects. He possesses the detailed knowledge and experience to quantify and qualify work necessary to perform activities described within the Tap and

Page 76 of 85 6/22/00 8:44:13 PM *OFFICIAL USE ONLY*

Rockv Flats Closure Project
Baseline Cost and Basis of Estimate

Proiect Baseline Devl WBS Filter 1CAC Activity Filter *

Starts In FY

Drain/Process Pipin Removal scope.

Pam Arnold, Project Engineer for Liquids Removal Team, is an Environmental Scientist with over 25 years of experience in project design and execution. Nearly nine (9) years of her experience is at RFETS including five (5) years as a B-771 Liquids project engineer. Her experience with low-level tank draining, high-level tank draining, and prior years' tap and drain and pipe removal work give her applicable, direct knowledge about estimating the resources needed to perform the tasks within scope of the Process Piping Removal Project.

Experience Item Desc - Project management scope as described in the activity description.

Breakdown of Cost Data:

Item - Project management activities.

Units - Lot

1CACAA

1CACAA02

Unit Cost - See totals

Unit Cost Adjustment factor - None

Revised Unit Cost - N/A

Basis for adjustment - N/A

Resources

WBS No:

Activity ID:

es	Cost Element Skill					Department	Curve	Quantity Units
L	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	7.300.00 Hours
r	Factors	8 Foreman		1825 Hours	,	0.5 Half the vear		
Į	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Project	Linear	417.93 Hours
ř	Factors	1825 Hours		Von Feldt	T	0.229 Deact runs (52/227) Davs in 02		
L	750	STRAIGHT TIME BASE	S020	ENVIRONMENTAL SCIENTISTS	K281S	Building 771 Closure Project	Linear	417.93 Hours
r	Factors	1825 hours		Pam Arnold	T	0.229 Deact runs (52/227) Davs in 02		
L	751	OVERTIME BASE & PRE.	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	1.314.00 Hours
ř	Factors	8 Foreman		1825 Hours		0.18 OT Factor	0.5 Half the year	
L	A52	TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	33,434.00 Dollars
ŕ	Factors	1825 Hours		80 Dollars per hr Jeff Fauble		1	0.229 Deact runs (5	52/227) Days in 02
Ĺ	A57	LATA	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	9,778.30 Dollars
ŕ	Factors	700 Hours		61 Dollars per hour Zarret		1	0.229 Deact runs (5	52/227) Days in 02
L	A5C	SUPPLIES	0000	NONE	K281S	Building 771 Closure Project	Linear	4,580.00 Dollars
ŕ	Factors	20000 Dollars		0.229 Deact runs (52/227) Days i				
L	A5H	SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	33,434.00 Dollars
r	Factors	1825 Hours		80 Dollars per hour Parrish	1		0.229 Deact runs (5	52/227) Days in 02
L	A5M	TRAVEL/TRAIN/RELOCAT	0000	NONE		Building 771 Closure Proiect	Linear	1.603.00 Dollars
	Factors	7000 Dollars/ea		0.229 Deact runs (52/227) Days i	n 02			

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	87.908.35	Dollars
	Factors	87908.4 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	39.988.43	Dollars
	Factors	39988.4 Dollars							

Activity ID: 1CACAAA1 Description: B774 Tank characterization & sampling (sludge)

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
1	B774 Tank Characterization & Sampling (Sludge)	1.00	each		0	0	0	62.610	0	62.610	0	62.610
4HA6A1201	Develop IWCP (Cold)	1.00	each	EE	0	0	0	6.750	0	6.750	0	6.750
4HA6A1202	Develop JHA/Conduct Walkdown (Cold)	1.00	each	EE	24	24	502	1.620	0	2.122	245	2.367
4HA6A1206	Develop EO & JHIT (Cold)	1.00	each	EE	0	0	0	7.200	0	7.200	0	7.200
4HA6A1210	Conduct IWCP/EO Review (Cold)	1.00	each	EE	10	10	218	1.918	0	2.135	106	2.242
4HA6A1211	Incorporate IWCP/EO Comments (Cold)	1.00	each	EE	0	0	0	1.675	0	1.675	0	1.675
	Tot	al for Activi	tv 1CACAA	41 :		34	720	81.773	0	82.492	351	82.844

Line Item 1 - B774 Tank Characterization & Sampling (Sludge)

BOE

The original resources and skill quantities for the Liquids Systems in the Building 771/774 complex were generated by the original liquids team approximately two years ago. During the last year, a detailed analysis of actual costs and times for labor categories was conducted upon completed systems. The original baseline for liquids was modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of

Page 77 of 85 6/22/00 8:44:13 PM *OFFICIAL USE ONLY*

Cost Risk

5 Schedule Risk

1CACAA WBS No: Activity ID: 1CACAAA1

Rocky Flats Closure Project **Baseline Cost and Basis of Estimate**

Proiect WBS Filter Activity Filter

1CAC

Baseline Devl

Starts In FY

access to the various systems. The results of those analyses have been applied to the remaining Building 771/774 complex liquids systems and are reflected in the new baseline data presented herein.

The pipe lengths for Tap and Drain, pipe accessibility and pipe contamination factors for Building 774 were assessed during an April, 2000 walk-down performed by Kathy London and Gary Davis. Pipe lengths for process piping removal were determined during earlier walk-downs of B774 by the planning and integration team.

Resource

ces		Cost Element		Skill		Department	Curve	Ouantity	Units
	A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K267S	Analytical Laboratory Services	Linear	62.610.00	Dollars

Events = (2 Samples per Day) Factors 2087 per Event 30

Line Item 4HA6A1201 - Develop IWCP (Cold)

BOE

Estimators Experience - Decommissioning planning estimates were generated by detailed estimating sessions conducted between 2 D&D Planners, 1 Lead D&D Engineer, 1 SME Scheduler/Estimator.

Experience Item Desc - Paul Leitz (B771 D&D Planner), Mike Millard (B771 D&D Planner), and Linda Rudd (SME Scheduler/Estimator) generated the estimates based upon the set/area scope to determine the types (cold/hot/balance) and quantities of work packages required. Breakdown of Cost Data:

Item - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Units - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost Adjustment factor - N/A.

Revised Unit Cost - N/A.

Basis for adjustment - N/A.

Resource

ces	Cost Element	Skill	Department	Curve	Ouantity Units
	A5H SUBCONTRACTED SRVS	P070 COST ESTIMATORS PLANNERS AN	K281S Building 771 Closure Project	Linear	6.750.00 Dollars

6750 Factors Dollars Planner

Line Item 4HA6A1202 - Develop JHA/Conduct Walkdown (Cold)

BOE

Estimators Experience - Decommissioning planning estimates were generated by detailed estimating sessions conducted between 2 D&D Planners, 1 Lead D&D Engineer, 1 SME Scheduler/Estimator.

Experience Item Desc - Paul Leitz (B771 D&D Planner), Mike Millard (B771 D&D Planner), and Linda Rudd (SME Scheduler/Estimator) generated the estimates based upon the set/area scope to determine the types (cold/hot/balance) and quantities of work packages required. Breakdown of Cost Data:

Item - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Units - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost Adjustment factor - N/A.

Revised Unit Cost - N/A.

Basis for adjustment - N/A.

Resources

				1			
s	Cost Element		Skill		Department	Curve	Ouantity Units
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KC10H	771 Complex Steelworkers	Linear	4.80 Hours
Factors	4.8 Hours						
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	14.40 Hours
Factors	14.4 Hours						
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	4.80 Hours
Factors	4.8 Hours						
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1.080.00 Dollars
Factors	1080 Dollars		Technical Support				
A5H	SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	540.00 Dollars
Factors	540 Dollars		Planner				

Line Item 4HA6A1206 - Develop EO & JHIT (Cold)

BOE

Estimators Experience - Decommissioning planning estimates were generated by detailed estimating sessions conducted between 2 D&D Planners, 1 Lead D&D Engineer, 1 SME Scheduler/Estimator.

Experience Item Desc - Paul Leitz (B771 D&D Planner), Mike Millard (B771 D&D Planner), and Linda Rudd (SME Scheduler/Estimator) generated the estimates based upon the set/area scope to determine the types (cold/hot/balance) and quantities of work packages required.

Breakdown of Cost Data:

Item - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Units - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost Adjustment factor - N/A.

WBS No: 1CACAA
Activity ID: 1CACAAA1

Rockv Flats Closure Project Baseline Cost and Basis of Estimate

Proiect E WBS Filter 1

Baseline Devl 1CAC

Activity Filter	*	Starts In FY	*	
		0 1	**	

Resources

Cost Element Skill Department Curve Quantity Units
A5H SUBCONTRACTED SRVS E070 MECHANICAL ENGINEERS K281S Building 771 Closure Project Linear 7.200.00 Dollars

Factors 7200 Dollars Engineer

Line Item 4HA6A1210 - Conduct IWCP/EO Review (Cold)

Revised Unit Cost - N/A. Basis for adjustment - N/A.

BOE

Estimators Experience - Decommissioning planning estimates were generated by detailed estimating sessions conducted between 2 D&D Planners, 1 Lead D&D Engineer, 1 SME Scheduler/Estimator.

Experience Item Desc - Paul Leitz (B771 D&D Planner), Mike Millard (B771 D&D Planner), and Linda Rudd (SME Scheduler/Estimator) generated the estimates based upon the set/area scope to determine the types (cold/hot/balance) and quantities of work packages required.

Breakdown of Cost Data:

Item - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000. Units - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000. Unit Cost - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000. Unit Cost Adjustment factor - N/A.

Revised Unit Cost - N/A.
Basis for adjustment - N/A.

Resources

3	Cost Element		Skill		Department	Curve	Ouantity	Units
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KC10H	771 Complex Steelworkers	Linear	2.40	Hours
Factors	2.4 Hours							
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	2.40	Hours
Factors	2.4 Hours							
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	K281S	Building 771 Closure Project	Linear	2.40	Hours
Factors	2.4 Hours							
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	2.40	Hours
Factors	2.4 Hours							
A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	477.60	Dollars
Factors	477.6 Dollars		Nuc/Crit Engineer					
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	1,080.00	Dollars
Factors	1080 Dollars		Tech Support					
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	K281S	Building 771 Closure Project	Linear	360.00	Dollars
Factors	360 Dollars		Engineer					

Factors 360 Dollars
Line Item 4HA6A1211 - Incorporate IWCP/EO Comments (Cold)

BOE

Estimators Experience - Decommissioning planning estimates were generated by detailed estimating sessions conducted between 2 D&D Planners, 1 Lead D&D Engineer, 1 SME Scheduler/Estimator.

Experience Item Desc - Paul Leitz (B771 D&D Planner), Mike Millard (B771 D&D Planner), and Linda Rudd (SME Scheduler/Estimator) generated the estimates based upon the set/area scope to determine the types (cold/hot/balance) and quantities of work packages required.

Breakdown of Cost Data:

Breakdown of Cost Data:

Item - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Units - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost - See B771 Planning Template, B771/774 Set Planning Packages, dated June 1, 2000.

Unit Cost Adjustment factor - N/A.

Revised Unit Cost - N/A. Basis for adjustment - N/A.

Resources

s		Cost Element		Skill		Department	Curve	Quantity	Units
	A5H	SUBCONTRACTED SRVS	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	270.00 D	ollars
	Factors	270 Dollars		Engineer					
	A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Project	Linear	955.20 D	ollars
	Factors	955.2 Dollars		Nuc/Crit Engineer					
	A5H	SUBCONTRACTED SRVS	P070	COST ESTIMATORS PLANNERS AN	K281S	Building 771 Closure Project	Linear	450.00 D	ollars

WBS No: 1CACAB Dollars PCB Oil Removal

Activity ID: 1CAC	CAB00	Description: Remove PCB Oils from Tanks 102 & 103						Cost Risk 5 Schedule Risk 5					
Line Item		Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
					Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		

WBS No: 1CACAB Baseline Devl Proiect **Rocky Flats Closure Project** 1CACAB00 1CAC Activity ID: WBS Filter **Baseline Cost and Basis of Estimate** Activity Filter Starts In FY PCB Oil Removal 1.00 each 90 1.847 1.847 901 2.748 Total for Activity 1CACAB00: 90 1.847 1.847 901 2.748 Line Item 1 - PCB Oil Removal Estimators Experience - B774 Size Reduction Methodology estimates were generated by detailed estimating sessions conducted between 2 Certified Estimators and BOE several Subject Matter Experts. Experience Item Desc - Gary Davis (Certified Cost Engineer) and John Allen (Certified Professional Estimator) generated the estimates with input from multiple B771 Subject Matter Experts. Cost Element CL:11 Department Units Resources Curve T050 RADIATION CONTROL TECHNOLIGI KC10H 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 18.00 Hours 18 Hours D&D HAZ REDUC TECH / RISK RED KC10H 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 72.00 Hours 72 Hours WBS No: 1CACAC B707/776 Oil Drum Acceptance Activity ID: 1CACAC00 Description: Transfer oil drums from B707 / B776 to B774 Cost Risk 4 Schedule Risk Line Item Description **Ouantity** Units BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Total Prime Burden Cost Total Cost Type Hours/Unit **Total Total** Cost & Escalation Cost 2.331 2.331 47.857 47.857 22.878 B707/776 Oil Drum Acceptance 1.00 each 70.735 SYS Contingency And Escalation 1.00 ea 3.313 3.313 0 0 0 3.313 Total for Activity 1CACAC00: 2.331 47.857 0 3.313 51.170 22.878 74.048 Line Item 1 - B707/776 Oil Drum Acceptance Estimators Experience - B774 Size Reduction Methodology estimates were generated by detailed estimating sessions conducted between 2 Certified Estimators and BOE several Subject Matter Experts. Experience Item Desc - Gary Davis (Certified Cost Engineer) and John Allen (Certified Professional Estimator) generated the estimates with input from multiple B771 Subject Matter Experts. Resources Cost Element Department Curve 750 STRAIGHT TIME BASE T050 RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 567.00 Hours 567 Hours STRAIGHT TIME BASE T060 D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers Linear 1.764.00 Hours

Line Item SYS - Contingency And Escalation

1764

Hours

Factors

BOE

Resources

ces		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	1.969.20	Dollars
	Factors	1969.2 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	1.343.93	Dollars
	Factors	1343 93 Dollars							

<u> </u>	1043.93 Dollars											
WBS No: 1CAC	AD Title: Ship Legacy Drums											
Activity ID: 1CA	ACAD00 Description: Ship Legacy Drums							Cost Risk	4 Schedule R	risk 4		
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4HACAD100	Ship Legacy Drums to B771	100.00	each	EE	2	150	3.083	0	0	3.083	1.483	4.566
4HACAD200	Repack Drums	100.00	each	EE	18	1.750	35.935	0	0	35.935	17.277	53.213
4HACAD300	Purchase New Drums for Repack	100.00	each	EE	0	0	0	11.488	0	11.488	0	11.488
4HACAD400	Move Re-packed Drums	100.00	each	EE	2	150	3.083	0	0	3.083	1.483	4.566
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	2.503	2.503	0	2.503
	To	tal for Activi	ty 1CACAD	00.		2 050	42 102	11 488	2 503	56 094	20 242	76 336

Line Item 4HACAD100 - Ship Legacy Drums to B771

BOE

- 1. Ship drum to B771 at a rate of 4 drums per hour. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50 hours each.
- Repack drums in a tent (Room 186). Crew 3 D&D Ops (in PAPRs); 1 RCT (in PAPR); 1 Foreman for 3 hours per drum.
- 3. Move re-packed drums to the B771 shipping dock. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50 hours each.

WBS No: 1CACAD Baseline Devl Proiect **Rocky Flats Closure Project** Activity ID: 1CACAD00 WBS Filter 1CAC **Baseline Cost and Basis of Estimate**

Activity Filter 4. Purchase 100 new drums for the re-pack; ship 100 old drums as waste. Drums are estimated to be 80 TRU and 20 LLW.

Resources

es		Cost Element	Skill			Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	0.50H	ours
	Factors	0.5 Hour							
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	1.00 H	ours
	Factors	1 Hour							

Line Item 4HACAD200 - Repack Drums

Factors 13

BOE

- 1. Ship drum to B771 at a rate of 4 drums per hour. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50 hours each.
- 2. Repack drums in a tent (Room 186). Crew 3 D&D Ops (in PAPRs); 1 RCT (in PAPR); 1 Foreman for 3 hours per drum.
- 3. Move re-packed drums to the B771 shipping dock. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total
- 4. Purchase 100 new drums for the re-pack; ship 100 old drums as waste. Drums are estimated to be 80 TRU and 20 LLW.

Resources

es		Cost Element	Skill			Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	4.50	Hours
	Factors	4.5 Hour							
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	13.00	Hours

Line Item 4HACAD300 - Purchase New Drums for Repack

Hour

BOE

- 1. Ship drum to B771 at a rate of 4 drums per hour. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50
- 2. Repack drums in a tent (Room 186). Crew 3 D&D Ops (in PAPRs); 1 RCT (in PAPR); 1 Foreman for 3 hours per drum.
- 3. Move re-packed drums to the B771 shipping dock. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50 hours each.
- 4. Purchase 100 new drums for the re-pack; ship 100 old drums as waste. Drums are estimated to be 80 TRU and 20 LLW.

Resources

es		Cost Element	Skill	Departmer	nt Curve	Quantity	Units
	A5C	SUPPLIES	0000 NONE	K281S Building 771 Closure	Proiect Linear	114.88	Bollars

Factors 114.88 per Drum Burdened

Line Item 4HACAD400 - Move Re-packed Drums BOE

- 1. Ship drum to B771 at a rate of 4 drums per hour. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50 hours each.
- 2. Repack drums in a tent (Room 186). Crew 3 D&D Ops (in PAPRs); 1 RCT (in PAPR); 1 Foreman for 3 hours per drum.
- 3. Move re-packed drums to the B771 shipping dock. Crew 2 D&D Ops; 1 RCT; 1 Foreman for a total of 50 hours each.
- 4. Purchase 100 new drums for the re-pack; ship 100 old drums as waste. Drums are estimated to be 80 TRU and 20 LLW.

Resources

ces		Cost Element		Skill		Department	Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	0.50	Hours
	Factors	0.5 Hour							
	750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	1.00	Hours
	_								

Factors 1 Hour Line Item SYS - Contingency And Escalation

BOE

Resources

es	S Cost Element		Skill		Department	Curve	Ouantity	Units	
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	1,487.96	Dollars
j	Factors	1487.96 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	1.015.50	Dollars
	Factors	1015.5 Dollars							

WBS No: 1CACAE Title: B771/774 Deactivation Water Wall Drainin Starts In FY

WBS No: 1CACAE Activity ID: 1CACAE100

Rocky Flats Closure Project Baseline Cost and Basis of Estimate

Proiect
WBS Filter
Activity Filter

Baseline Devl er 1CAC

Starts In FY

ACTIVITY ID. TOAT	Description: Flaming for Diff. Water-w	Cosi Risk 1 Schedule Risk 1										
Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		
4GW100H1 Planning & Engineering Prep to Drain			each	EE	865	865	23.359	43.253	0	66.611	11.399	78.010
Total for Activity 1CACAE100:						865	23.359	43.253	0	66.611	11.399	78.010

Line Item 4GW100H1 - Planning & Engineering Prep to Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data

Resources

es		Cost Element		Skill		Department		Curve	Ouantity	Units
	750	STRAIGHT TIME BASE	E050	ENVIRONMENTAL ENGINEERS	K281S	Building 771 Closure Pr	roiect	Linear	55.00	Hours
ı	Factors	110 Hours	1	0.5 Difficulty Factor			1			
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Pr	roiect	Linear	26.00	Hours
i	Factors	52 Hours	1	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	K281S	Building 771 Closure Pr	roiect	Linear	16.50	Hours
	Factors	33 Hours		0.5 Difficulty Factor		1				
	750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	K281S	Building 771 Closure Pr	roiect	Linear	203.00	Hours
i	Factors	406 Hours	1	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	K281S	Building 771 Closure Pr	roiect	Linear	4.00	Hours
i	Factors	8 Hours	1	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	K281S	Building 771 Closure Pr	roiect	Linear	32.50	Hours
i	Factors	65 Hours	1	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	P150	TRAINERS	K281S	Building 771 Closure Pr	roiect	Linear	13.50	Hours
i	Factors	27 Hours	1	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	K281S	Building 771 Closure Pr	roiect	Linear	0.50	Hours
i	Factors	1 Hours	1	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	S010	CHEMISTS	S100S	SSOC Salaried		Linear	1.50	Hours
i	Factors	3 Hours	ı	0.5 Difficulty Factor						
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelwork	kers	Linear	143.00	Hours
	Factors	286 Hours		0.5 Difficulty Factor		T				
	750	STRAIGHT TIME BASE	T060		KC10H	771 Complex Steelwork	kers	Linear	300.00	Hours
	Factors	600 Hours		0.5 Difficulty Factor		T				
	751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelwork	kers	Linear	25.00	Hours
	Factors	50 Hours		0.5 Difficulty Factor		1				
	751	OVERTIME BASE & PRE.	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelwork	kers	Linear	44.00	Hours
	Factors	88 Hours		0.5 Difficulty Factor		T				
	A52	TENERA	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Pr	roiect	Linear	13.762.50	Dollars
i	Factors			75 Dollars per hr		0.5 Difficulty Fact				
	A52	TENERA	E130	OTHER ENGINEERS	K281S	Building 771 Closure Pr	roiect	Linear	3.112.50	Dollars
ı	Factors	83 Hours		75 Dollars per hr		0.5 Difficulty Fact			ı	
	A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	K281S	Building 771 Closure Pr	roiect	Linear	5.587.50	Dollars
ı	Factors			75 Dollars per hr		0.5 Difficulty Fact			ı	
	A5C	SUPPLIES	0000	NONE	K281S	Buildina 771 Closure Pr	roiect	Linear	6.750.00	Dollars
ı	Factors		1	0.5 Difficulty Factor		Г				
	A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	K281S	Building 771 Closure Pr	roiect	Linear	7.290.00	Dollars
ı	Factors		1	90 Dollars per hr		0.5 Difficulty Fact				
	A5H	SUBCONTRACTED SRVS	P080	HEALTH PHYSICISTS	K281S	Building 771 Closure Pr	roiect	Linear	6.750.00	Dollars
	Factors	180 Hours		75 Dollars per hr		0.5 Difficulty Fact	tor			

Activity ID: 1CACAE200 Description: B771 Water-Wall draining projects Cost Risk 5 Schedule Risk 5

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
				Type	Hours/Unit	Total	Total	Cost	& Escalation	Cost		

 WBS No:
 1CACAE
 Rocky Flats Closure Project
 Project
 Baseline Devi

 Activity ID:
 1CACAE200
 Baseline Cost and Basis of Estimate
 WBS Filter Activity Filter *
 1CAC

			Daseille Cos	st and	a Dasis di Esti	mate	Activit	v Filter *		Start	s In FY *	
4GW200H2	Tap & Drain	1.0	0 each	EE	2.043	2.043	42.806	18.050	0	60.856	20.735	81.591
SYS	Contingency And Escalation	1.0	0 ea l	EE	0	0	0	0	1.428	1.428	0	1.428
		Total for Activ	vity 1CACAE200):		2.043	42.806	18.050	1.428	62.284	20.735	83.019

Line Item 4GW200H2 - Tap & Drain

BOE

The original resources and skill quantities for the Liquids Systems in Building 771 were generated by the Liquids team headed by Mr. Ray Boyle approximately two years ago. During the last year, a detailed analysis of actual costs and times by labor was conducted upon completed systems. The original baseline for liquids has been modified to take advantage of the actual charge comparison, regression analysis to determine cost driving factors, and difficulty of access to the various systems. The results of those analyses have been applied to the remaining liquids systems and are reflected in the new baseline data presented herein.

Resources

						1		
s	Cost Element		Skill		Department	Curve	Ouantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	43.00 Ho	ours
Factors	43 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	354.00 Ho	ours
Factors	354 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	1.340.00 Ho	ours
Factors	1340 Hours		1 Difficulty Factor					
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KC10H	771 Complex Steelworkers	Linear	236.00 Ho	ours
Factors	236 Hours		1 Difficulty Factor					
751	OVERTIME BASE & PRE.	C120	D&D SKILLED TRADES	KC10H	771 Complex Steelworkers	Linear	8.00 Ho	ours
Factors	8 Hours		1 Difficulty Factor					
751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KC10H	771 Complex Steelworkers	Linear	62.00 Ho	ours
Factors	62 Hours		1 Difficulty Factor					
A5C	SUPPLIES	0000	NONE	K281S	Building 771 Closure Project	Linear	9.200.00 Do	ollars
Factors	9200 Hours		1 Dollars		1 Difficulty Factor			
A5H	SUBCONTRACTED SRVS	E070	MECHANICAL ENGINEERS	K281S	Building 771 Closure Project	Linear	8.850.00 Do	ollars
Factors	118 Hours		75 Dollars per Hr		1 Difficulty Factor			

Line Item SYS - Contingency And Escalation

BOE

Resources

ces	Cost Element			Skill		Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	866.96	Dollars
	Factors	866.957 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	561.17	Dollars

Factors 561.173 Dollars

WBS No: 1CAC	WBS No: 1CACBB Title: Bottlebox/Cementation Operations												
Activity ID: 1CACBB00 Description: B774 Bottle / Cementation Operations - FY00 Cost Risk 3 Schedule Risk 3													
Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation		Burden Cost	Total Cost	
4HACBB00	Bottlebox Treat Bottles	20.00	ea	НС	49	980	20.081	30.426	0	50.507	9.772	60.279	
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	382	382	0	382	
	Tot	al for Activi	ty 1CACBB00	D:		980	20.081	30.426	382	50.889	9.772	60.661	

Line Item 4HACBB00 - Bottlebox Treat Bottles

BOE

Historical Data Source - WBS element 110409030301 rpt_002a for February, 1999 reporting period which can easily be retrieved from the FY 99 P&I Reporting System or in the B-771 Closure Planning offices in T-771J. 110409030301 contained the scope of work for the FY 99 bottlebox effort of 45 batches, and is nearly identical to the scope of this effort (except for the number of batches).

Item Desc - A batch of TRU waste ion-x resin or low-level solution from various operations.

Breakdown of Historical Data:

Item - A batch of solution

Units - Ea

Unit Cost - \$4,275 (FY 99 ACWP per batch)

Unit Cost Adjustment factor - .78

Revised Unit Cost - \$3,333

Basis for adjustment - The FY 99 ACWP has been reduced 22 percent to allow for efficiencies and improved performance experienced as more batches were processed.

Page 83 of 85 6/22/00 8:44:15 PM *OFFICIAL USE ONLY*

WBS No: 1CACBB Baseline Devl Proiect Rocky Flats Closure Project 1CACBB00 1CAC WBS Filter **Baseline Cost and Basis of Estimate**

Factors

80

Dollars per hour

16

Hours per batch

Activity ID: Activity Filter Starts In FY * FY00 Estimate would include 20 wks 22May00 - 30Sep00 x 1 batch per wk = 20 batches. Resources Cost Element Department Curve **Ouantity** Units 750 STRAIGHT TIME BASE R010 CHEMICAL SYSTEMS OPERATOR (| KC10H | 771 Complex Steelworkers Linear 21.00 Hours 3 PSs X 7 hrs per batch Factors 21 Hours 16.00 Hours 750 STRAIGHT TIME BASE RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers Linear 16 Hours 2 RCTs X 6 hrs per batch. + one 4 hrs Factors 750 STRAIGHT TIME BASE D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 12.00 Hours Linear 12 Hours 3 Techs X 4 hrs Factors TECHNICAL WRITERS AND EDITOR | K281S | Building 771 Closure Project 70.00 Dollars A57 LATA Linear Dollars per hour Factors 1 Hour A5H SUBCONTRACTED SRVS NUCLEAR (CRITICALITY) ENGINEER | K281S | Building 771 Closure Project 1.280.00 Dollars Linear Hours per batch Factors 80 Dollars per hour A5H SUBCONTRACTED SRVS F130 OTHER ENGINEERS K281S Building 771 Closure Project 171 30 Dollars Linear Factors 171.3 Prime Dollars Line Item SYS - Contingency And Escalation BOE Resources Cost Element Skill Department Curve Quantity Units CON CONTINGENCY 0000 NONE ZDEPT No Department Linear 225.55 Dollars Factors 225.554 Dollars ESC ESCALATION 0000 NONE ZDEPT No Department Linear 156.43 Dollars 156.428 Dollars Activity ID: 1CACBB01 Description: B774 Bottle / Cementation Operations - FY01 Cost Risk 3 Schedule Risk Total Prime Line Item Description BOELabor Labor Hours Labor Cost Materials/ Sub Contingency Burden Cost Total Cost **Quantity** Units Type Hours/Unit Total **Total** Cost & Escalation Cost HC 4HACBB01 Bottlebox Treat Bottles 40.00 ea 49 1.960 40.161 60.852 101.013 19.157 120.170 SYS Contingency And Escalation 1.00 ea EE 6.485 6.485 6.485 Λ Total for Activity 1CACBB01: 1.960 40.161 60.852 6.485 107.499 19.157 126.656 Line Item 4HACBB01 - Bottlebox Treat Bottles Historical Data Source - WBS element 110409030301 rpt 002a for February, 1999 reporting period which can easily be retrieved from the FY 99 P&I Reporting BOE System or in the B-771 Closure Planning offices in T-771J. 110409030301 contained the scope of work for the FY 99 bottlebox effort of 45 batches, and is nearly identical to the scope of this effort (except for the number of batches). Item Desc - A batch of TRU waste ion-x resin or low-level solution from various operations. Breakdown of Historical Data: Item - A batch of solution Units - Ea Unit Cost - \$4,275 (FY 99 ACWP per batch) Unit Cost Adjustment factor - .78 Revised Unit Cost - \$3,333 Basis for adjustment - The FY 99 ACWP has been reduced 22 percent to allow for efficiencies and improved performance experienced as more batches were FY01 Estimate would include 40 wks 010ct00 - 30Jun00 x 1 batch per wk = 40 batches. Resources Cost Element Department Curve Quantity Units 750 STRAIGHT TIME BASE R010 CHEMICAL SYSTEMS OPERATOR (KC10H 771 Complex Steelworkers 21.00 Hours Linear Hours 3 PSs X 7 hrs per batch RADIATION CONTROL TECHNOLIGI | KC10H | 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 16.00 Hours 2 RCTs X 6 hrs per batch. + one 4 hrs **Factors** 16 Hours D&D HAZ REDUC TECH / RISK RED | KC10H | 771 Complex Steelworkers 750 STRAIGHT TIME BASE Linear 12.00 Hours 12 Hours 3 Techs X 4 hrs Factors TECHNICAL WRITERS AND EDITOR | K281S | Building 771 Closure Project 70.00 Dollars A57 LATA Linear Dollars per hour Factors Hour E080 NUCLEAR (CRITICALITY) ENGINEER K281S Building 771 Closure Project A5H SUBCONTRACTED SRVS 1.280.00 Dollars Linear

> 6/22/00 8:44:15 PM Page 84 of 85 OFFICIAL USE ONLY

WBS No: 1CACBB
Activity ID: 1CACBB01

Rockv Flats Closure Project
Baseline Cost and Basis of Estimate

WBS Filter
1CAC

WBS Filter
1CAC

Activity Filter * Starts In FY *

A5H SUBCONTRACTED SRVS E130 OTHER ENGINEERS K281S Building 771 Closure Project Linear 171.30 Dollars

Factors 171.3 Prime Dollars

Line Item SYS - Contingency And Escalation

BOE

Resources

es		Cost Element		Skill		Department	Curve	Ouantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	3.958.50	Dollars
_	Factors	3958.50 Dollars							
	ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	2.526.91	Dollars

Factors 2526.91 Dollars

Report Totals:

Labor Hours	Labor Cost	Materials/Sub	Cantingana	Total Daims	Burden Cost	Total Cost
Total	Total		& Escalation	~	Buraen Cosi	Total Cost
214.253	5.230.159	3.858.525	771.487	9.860.171	2.315.238	12.175.408

Page 85 of 85 6/22/00 8:44:19 PM *OFFICIAL USE ONLY*